NATIONAL PETROLEUM NEWS

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Natural Gasoline Makers See Greater Growth Despite Anti-Knock Fuels

By J. C. Chatfield
N. P. N. Staff Writer

THE cracking process with its anti-knock gasoline will not drive the manufacturer of natural gasoline out of business. On the contrary the business should continue its phenomenal growth. These expressions of confidence in the future were made by leaders of the industry at the fifth annual convention of the Association of Natural Gasoline Manufacturers which closed a two-day session at the Mayo hotel here May 6.

Contrary to the rumors of recent months it was shown by two independent investigations that natural gasoline has a distinct value as a blending material with straight run gasoline to produce a non-detonating motor fuel.

Constant increases in consumer demand for motor fuel will force refiners to crack heavier portions of their crude, it was predicted. Deep cracking to produce the maximum cut of pressure gasoline will require natural gasoline for blending. Demand from refiners for straight run blending is expected to continue unabated.

Approximately 400 manufacturers attended the convention, keeping the ball room of the hotel well filled each day as problems of the industry were discussed. Registrations showed manufacturers present from New York to California and from New Orleans to Ohio.

Peck Re-elected

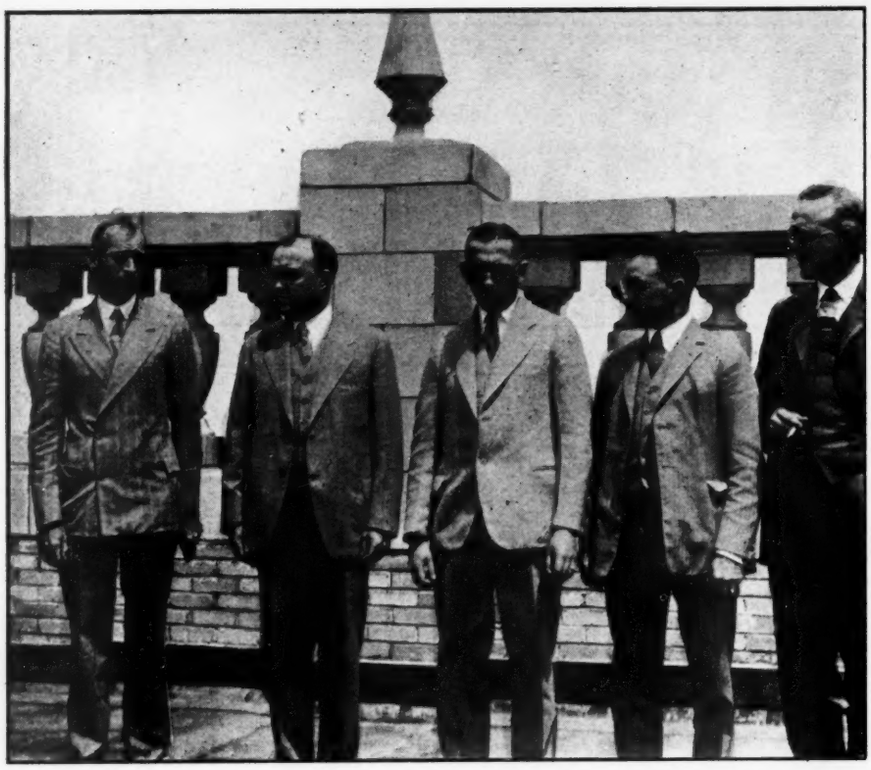
E. L. PECK, general manager of the Empire Gasoline Co., Bartlesville, was unanimously elected president of the association for a second term. Each of the three vice-presidents that served last year was re-elected with Mr. Peck. They are: F. L. Chase, manager of the Lone Star Gas Co., Dallas; A. M. Ballard, manager of the gasoline department of the Sun Oil Co., Tulsa; and F. E. Rice, general superintendent of the gasoline department of the Phillips Petroleum Co., Bartlesville.

Each of the following companies was authorized to select one of its men to serve on the board of directors of the association for a two-year period: Amerada Petroleum Corp., Carbide & Carbon Chemicals Corp., Pacific Gasoline Co., Phillips Petroleum Co., Skelly Oil Co., Texas Pacific Coal & Oil Co., Tidal Refining Co., Roxana Petroleum Corp., General Petroleum Corp., Henderson Gasoline Co., Burrell Oil & Gasoline Co., Eagle Picher Lead Co., and the California Gasoline Co.

The following companies are now represented on the board, their terms not having expired this year: Chestnut & Smith Corp., Transcontinental Oil Co., Akin Gasoline Co., Hurley Gasoline Co., Prairie Oil & Gas Co., Marland Oil Co., Empire Gasoline Co. and the Sun Oil Co.

The term of office of A. V. Bourque, secretary and treasurer, has not expired. The election for that office is held at the first meeting of the board of directors following the annual convention. This year the meeting will be held at Tulsa on May 17 or 18.

A section of the crowd at the fifth annual meeting of the Association of Natural Gasoline Manufacturers.



N. P. N. Staff Photo

Five California Gasoline Men at Convention. Left to right: B. F. Masten, Pacific Gasoline Co.; R. E. Cameron, Pacific Gasoline Co.; George L. Ratcliffe, General Petroleum Corp.; J. A. Campbell, inventor of Campbell Oil Froth Absorbers and Henry N. Wade who is associated with Mr. Campbell.

SINCE the automobile industry has been looking forward to the advent of a high compression motor and the refining industry has been searching for a motor fuel which will not knock in such motors the natural gasoline industry has been somewhat disturbed about the qualities of its product. Technologists of refineries and cracking process companies discovered that cracked gasoline has a value as an anti-knock gasoline.

The Association of Natural Gasoline Manufacturers authorized an investigation of its product by the research laboratories of the University of Michigan. And at the same time experiments were made in the laboratories of the Sun Oil Co. at its eastern refinery. Results of both of these investigations were reported at the final session of the convention.

The paper by A. Ludlow Clayden, research engineer for the Sun Oil Co., is reproduced on page 96 of this issue of National Petroleum News. The paper by Drs. E. H. Leslie and G. G. Brown of the University of Michigan, will be released for publication shortly.

Dr. Brown presented the results of his joint investigations with Mr. Leslie extemporaneously at the convention.

Because of the well known anti-knock propertiets of benzol it was chosen by the Michigan men as a yardstick to measure similar properties of natural gasoline. Tests were made in the bouncing pin apparatus designed by Thomas Midgley, Jr., of the General Motors Research Corp., in his investigations which resulted in the development of tetraethyl lead as a blending compound. Separate investigations were made on various commercial motors of the values of natural gasoline to provide acceleration and to develop power.

Comparison with Benzol

TESTS were conducted at the university using natural gasoline blended in various proportions with straight run gasoline against benzol blends of various proportions. Dr. Brown announced that in blends of natural gasoline up to 40 per cent he found natural gasoline from one half to two thirds as effective as benzol blends of similar proportions.

Coming Meetings

National Oil Scouts Association of America, Gunter Hotel, San Antonio, Tex., May 17, 18.

Natural Gas Supply Men, Inc., at International Exposition Grounds, Tulsa, May 17, 18, 19, 20.

Minnesota Petroleum Association and Wisconsin Independent Oil Jobbers Association, joint meeting, Hotel Stoddard, La Crosse, Wis., June 16.

American Petroleum Institute, Standardization Conference, Hotel Broadmoor, Colorado Springs, Colo., June 15, 16, 17.

The maximum anti-knock effect by blending as compared with benzol was in 30 per cent blends. A straight run gasoline blended with 30 per cent natural gasoline was found to be equal to a 20 per cent benzol blend or ⅔ as effective as benzol. Pure natural gasoline was found to be 30 per cent as effective as benzol.

It is the theory of Dr. Brown that the anti-knock qualities of any motor fuel are varied by the ignition temperature of the fuel as related to the rate of rise of pressure resulting from the explosion. In the case of benzol it was found that the ignition point is high, over 600°F., but that the rate of pressure rise is low so that the flame will not travel ahead and cause detonation. Natural gasoline, however, has a low ignition point, around 200°F., but a high pressure rise so that detonation is restricted for an entirely different reason.

Power and Acceleration

DR. BROWN found by controlled experiments on various automobile engines that natural gasoline blends give a quicker acceleration than straight run gasoline up to a certain point and that greater power is developed by the use of certain quantities of natural gasoline.

At the close of his address Dr. Brown suggested to the manufacturers that they sell their product direct to the motorist as a high test motor fuel adding only enough refinery gasoline to hold the natural gasoline in the tank. He recalled a Ford he operated with natural gasoline in 1912 to 1914 in which he never changed the oil, merely adding more from time to time, and never found it necessary to have the carbon removed.

With natural gasoline there would be no heavy ends to leak past the pistons and cause dilution, the motor would run smoother and the driver would be able to accelerate more quickly and easily, he said. To use the product direct in motors he suggested that heat should be taken from the manifold to increase power and mileage.

In his discussion of the Brown paper and the Clayden paper, which was read by A. L. Ballard in the absence of Mr. Clayden, George G. Oberfell of the Phillips Petroleum Co., pointed out that since 1921 the 50 per cent and 90 per cent points in the distillation curve of motor gasolines have constantly risen although initial boiling points heve been reduced. He quoted C. F. Kettering of the General Motors Research Corp., to the effect that modern gasoline is more detonating than in former years because of the inclusion of more heavy ends.

More Carbon Trouble

MR. OBERFELL stated that motors must have carbon cleaned out more frequently than before because of the use of cracked gasoline. He brought up the point that carbon deposition might overcome the non-detonating qualities of cracked gasoline in actual motor performance. It was stated that aromatic or unsaturated hydrocarbon

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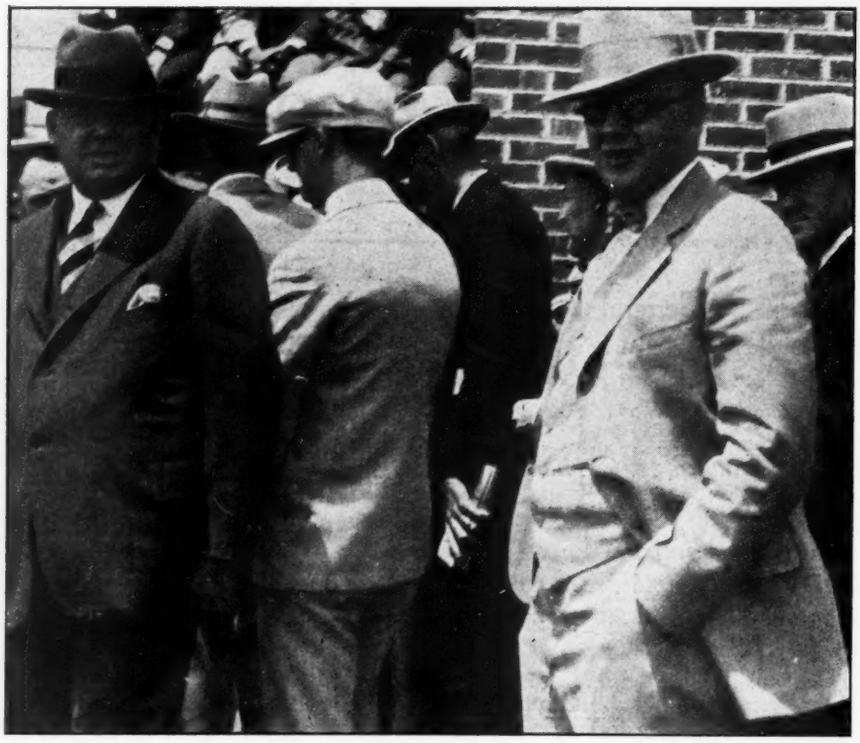


N. P. N. Staff Photo

Facing the camera in this group are R. I. Short, Prairie Oil & Gas Co. and C. C. Peppers, Peppers Gasoline Co. At the right in the rear is M. A. Bigelow, Orfic Gasoline Co.

compounds do not burn so cleanly in the motor and tend to pile up gum with the dust and carbon.

S. C. Carney of the Roxana Petroleum Corp., presented an optimistic picture of the future in his discussion of the paper by Dr. F. R. Lederer of the Texas Pacific Coal & Oil Co., on the economic value of natural gasoline to the refiner. This paper was printed in the May 5 issue of National Petroleum News.

Mr. Carney enunciated what he called the law of compensation to illustrate the future market possibilities of natural gasoline. The law, he said, operates in every sphere of human activity. As market demands for motor fuel increase refiners will crack more heavily, produce a motor fuel of less volatility and demand more natural gasoline to obtain an acceptable product.

Opening Session

VICE-PRESIDENT CHASE delivered the address of welcome at the opening meeting at which he presided. He was followed by E. L. Peck with the president's annual address in which the new policy of the association of preaching the merits of natural gasoline to consumers was announced.

Both President Peck and J. H. Boyle, secretary of the Chestnut & Smith Corp,. who reported for the gas contract committee, spoke of the growing competition for gas to process, which competition has resulted in higher royalty payments to producers and reduction in the gas contract term. Part of this situation was attributed to a mistaken idea of the value of portable plants. While both speakers recognized the place of portables in the industry as a means of conserving the gasoline content of flush gas they pointed out that a lack of knowledge of their limitations may lead to disaster.

It was brought out that the chief investment in a gasoline plant usually is in gathering lines and compressor equipment. To install plants long time contracts must be made to assure the manufacturer that he will have a supply of raw material.

The portable plant is chiefly useful as a stop-gap before a permanent plant can be erected, while well pressure can be utilized and gathering systems are limited. Producers making short time contracts at high royalties to portable operators are demanding similar contracts from operators of permanent plants.

Gas Contracts

THE gas contract committee reported to the convention that any standard form of contract presented for adoption must be worked out in co-operation with the gas producers. For that reason it presented a resolution asking the Mid-Continent Oil & Gas Association to appoint a gas contract committee to work with the natural gasoline association's contract committee in drafting a standard form. The resolution was adopted unanimously.

To prepare their side of the story the natural gasoline manufacturers agreed to submit cost data to the contract committee which it can use in the coming negotiations. The cost data will be used without reference to the companies providing the figures.

Results of the months of work by the gas testing committee were announced by George P. Bunn, assistant superintendent of the gasoline department of the Phillips Petroleum Co. The committee recommended changes in the tentative code of the Natural Gas Association of America for testing the gasoline content of gas.

The report of this committee was referred to the board of directors for presentation to the gas producers association at its coming convention at Tulsa. A hearing before the association has been scheduled. The text of the committee's report will be released for publication within the next few weeks.

Absorption Oil

INTENSE interest in manufacturing problems was shown by plant operators and technologists in the technical parts of the program. Arthur L. Davis, chief chemist of the Empire Refineries, confirmed the belief of many operators in his paper on absorption oil in which he suggested the use of lighter absorption oils with a boiling point range not so widely separated from natural gasoline as that now generally used.

Discussion centered about the fractionation problems which attend the use of a low boiling point absorption oil. It was generally an expressed opinion that operators must study the art of fractionation if they wish to keep up with the band wagon of the industry and keep their costs down to a point where profits will be possible. Discussion of the Davis paper was led by A. F. Maxson of the Sun Oil Co.

Mr. Carney was called on at the last plant operators' forum to discuss his newly developed refrigeration process which was exclusively described in the May 5 issue of National Petroleum News. He paid tribute to three of his associates in the work, calling on them to stand up.

F. C. Cutting and R. E. Baker, two young engineers, were given credit for their aid in working out the mathematics of the problem. Mr. Cutting took his master's degree in engineering at the University of Michigan about two years ago and Mr. Baker took his bachelor's degree at Oklahoma University and his master's at Illinois.

Practical aid in mechanics was given by Perry Johnson, a brilliant mechanic from the Drumright plant, who has made a remarkable record with the Roxana Petroleum Corp., although he has not had the advantage of a technical education. He was called on to rise at the convention but was not present at the time.

Trade Association Activities

IN his discussion of trade association activities following the address of W. R. Boyd, Jr., assistant secretary and counsel of the American Petroleum In-

stitute, D. E. Buchanan, former president of the association in part:

"First—Improve and perfect the processes of manufacture and production, eliminate waste and utilize the by-products.

"Second—Understand and improve the present market, study and develop new markets and keep abreast of changing market demands.

"There is also a great field for this, as well as all trade associations, in connection with the supply of raw material and the determination of a price and conditions of purchase at all times adequate and fair to all concerned.

"Our industry is growing by leaps and bounds, more rapidly than could rationally have been prophesied a few years ago; however, it requires but a simple calculation to determine that we have only kept pace with the increase in motor fuel consumption and only by expanding in this manner have we been able to supply the needs of the refiners of the country.

"Future years will no doubt see steady increases in gasoline consumption and consequent increase in the demand for our product. That extra demand will be met and satisfied as it always has been by the oil men of the country, and by this line of reasoning it requires no particular vision to picture the Natural Gasoline industry in a very few years many times larger than today.

Saturation Point Unreached

GENERALLY speaking, and in comparison with other products of petroleum, we have enjoyed a wholesome demand for the commodity we manufacture, indicating that although we have increased our production by enormous percentages, we have not yet reached the point of saturation. Improved refining methods and processes and the public demand for motor fuel of high quality assure us of a fair relative market price so long as we do not produce more than is required to enable the refiners to satisfy the demands of the market.

Joe Woods

Plant operator from Phillips Petroleum Co. Osage plant.

"In this age of highly specialized products and manufacturing processes, we will not retain our place in the petroleum world, if we are not able to perfect our processes and improve our product to keep pace with the advance of modern industry. We can not cling to antiquated and wasteful methods and hope to compete in the markets of tomorrow. Here, our Association can and will, if properly supported, be of valuable assistance to us.

"We read of many purported substitutes for motor fuel and we know something of the research work that is being carried on in an effort to develop a synthetic product, one that will give as good or better results at less cost. While apparently none of these substitutes threaten the security of our investments at this time, we can not be unmindful of this tendency and we must, therefore, leave nothing undone to produce a better product than heretofore at a cost level that will enable us to meet the constantly changing economic conditions."

In his annual report A. V. Bourque told the manufacturers that there was a surplus in the treasury as was the case a year ago and that membership in the organization has grown substantially.

J. A. Veasey, chief counsel for the Carter Oil Co., was toastmaster at the dinner dance which closed the convention. C. C. Herndon, vice-president of the Skelly Oil Co., was the principal speaker.

Advertise Merits Of Natural Gasoline

By E. L. Peck

General Manager, Empire Gasoline Co., and President, Association of Natural Gasoline Manufacturers

Delivered Before Fifth Annual Convention, Tulsa, May 5

I WISH to mention briefly the principal activities and accomplishments of our Association during the past year. Through the efforts of some of our members, a change was effected in the A. S. T. M. method of distillation for natural gasoline and, following the tentative adoption of the new method by the American Society for Testing Materials, our association adopted it, and our specification cards were revised to carry the method thereon. These cards have been most widely distributed, so wide, in fact, that a reprint was necessary. The new method fairly and favorably affects the natural gasoline manufacturer as it eliminates possible controversy on this point.

The A. P. I. coefficients of expansion were adopted by our association so that the whole petroleum industry is now in harmony on that detail of tank car measurement of our products.

Our association has been represented at all important petroleum conferences held during the year by specially delegated members of our organization, its Secretary and President. These meetings have included general, special technical, general transportation, and public relations meetings of the American Petroleum Institute; Interstate Commerce Commission, and Bureau of Explosive hearings; meetings of D-2 Committee of the American Society of Testing Materials; National Petroleum Marketers' and American Oil Men's Associations, as well as various state jobbers' meetings; meeting of the Western Petroleum Refiners' Association, meetings with the Osage Oil & Gas Lessees' Association on the question of return of residue gas, and at various freight rate hearings throughout the year. In addition, our association has been honored with representation on the advisory committee of the Federal Specification Board, a valuable appointment from the standpoint of the natural gasoline manufacturer.

Plant operators' meetings held in the fields were continued this year, and were successful considering weather and other conditions prevailing at the time.

Safety Work

THE association has co-operated with the Petroleum Safety Council of the Mid-Continent Oil & Gas Association in securing safe and sane safety regulations governing natural gasoline plants. This was done through meetings with the Oklahoma State Commission of Labor in Oklahoma City, in Tulsa, and by a trip with him to the field.

While the Association of Natural Gasoline Manufacturers has had an active traffic committee for years, natural gasoline rate problems have been similar

to those of the refiners. Our traffic committee has met with other traffic associations and accomplished a great deal.

The close of the year finds our association maintaining the same harmonious relations and co-operating with other petroleum associations and the oil industry generally.

Looking Ahead

WHAT of the year ahead? The association, while looking backward for a brief time at each annual meeting is, and always must be, if it will succeed, a forward-looking organization. Therefore, it is to thoughts and plans for the future that we should direct most of our attention.

The year 1925 entered upon a period of relative prosperity for our industry which had not been equalled for some years. This condition prevailed well through the summer and late fall, but during the last few months of that year and the first quarter of 1926, a decided relapse has occurred not wholly accounted for by seasonal conditions. We have not only seen the price decline to where it about equals the cost of manufacture, but we have heard predictions of future disuse of large quantities of our product. The cause of such predictions cannot be laid wholly at our door, and we must not stand idle and permit them to become a reality.

One of the factors which has adversely affected the natural gasoline market for the last few months has been the abnormally high market for kerosene. Temporarily, the refiner finds that a certain portion of the crude, which formerly was being made into motor fuel with the aid of natural gasoline, can now be more profitably sold as kerosene. It is quite possible, however, that present large runs of kerosene cannot long continue to find so profitable a market, and it is just a matter of time until this stock will again be converted to motor fuel and call for a proportionate amount of natural gasoline.

It is true that for a short period last year, a wide margin prevailed between the selling price of natural gasoline and the sales price of U. S. Motor gasoline in favor of the natural gasoline manufacturer. It is equally true that a similar condition with the margin in favor of the buyer has prevailed many times in past years. However, the fact remains that except when a basis and range of prices is existing, which not only allows the natural gasoline manufacturer a fair margin of profit over cost, but also permits the buyer to use natural gasoline at a cost, which of itself, will not prevent the buyer from making a fair profit on his finished product, then and only then will that phase of the situation be satisfactory. That is the basis of all successful business and it is to be hoped that both the buyer and seller of natural gasoline will keep it in mind.

In the past, natural gasoline manufacturers have taken no very definite steps to present the merits of their product to consumers except in a rather desultory way. It is desirable that definite emphatic measures be started and continued in order to fully advise all possible consumers of the various qualities and characteristics which constitute the values in natural gasoline.

The individual manufacturer cannot hope for success by his own unaided effort. As the general collapse of 1919-20 proved, individual effort availed nothing and it is safe to predict that such individual effort in a general publicity campaign would fall far short of the desired result. The only way tangible, favorable results can be assured is through the combined efforts of all natural gasoline manufacturers. The members of this association, for many months, have given serious thought to the matter of product publicity and have made plans which will be put into practice beginning with this convention.

The convention program committee provided a noteworthy opening for such an educational campaign by securing distinguished authorities on the qualities of gasoline as speakers on this program; our publicity committee is preparing, through the news columns and advertising pages of various trade journals, to launch an educational campaign in the immediate future; the association has asked for and will probably receive invitations to appear on the programs of various national and state marketing association meetings and the association is determined to leave no stone unturned to prevent natural gasoline from suffering due to lack of knowledge of the facts involved, when compared with any other component entering into the manufacture of motor fuel.

Internal Problems

ALL of our problems are not from the outside by any means. Careful consideration should be given to conditions within the industry itself, if we are to preserve our investments and realize a reasonable profit from our business. I refer particularly to ruinous competition, giving of bonuses and premiums for gas contracts, and the misuse of the so called portable plant in the hands of those who are not in the natural gasoline business from the standpoint of permanency, but rather think they see an opportunity of "getting rich" in a few months in spite of the fact that they contract to pay prices for gas which all past experience proves cannot be done when allowance is made for plant amortization, interest on investment and reasonable profits.

In general, the payment of bonuses or premiums above the fair prevailing market price for casinghead gas, even if possible in a very limited number of cases, cannot fail in the long run to react harmfully on the industry as a whole and upon the originator, if he is fortunate enough to remain in the business. This result must follow because such transactions soon become known generally in the industry and thereafter the premium will be considered as part of the prevailing market price and efforts will be made to obtain still greater premiums on later transactions.

Portable Plants

AT the present, a fairly large number of casinghead gas producers and some manufacturers have apparently been convinced that the financial sting has been extracted from the business of manufacturing of natural gasoline by the advent of the misnamed "portable plant." With no intention of criticizing the manufacturers of such equipment, except possibly for their use of the term "plant," it should be pointed out that the cost of such units usually only covers from one-fifth to one-tenth of the final cost of the completed gasoline plant when the necessary gathering system, compressor equipment, storage tanks, loading out facilities, water system, buildings and other essential auxiliaries are taken into account.

The only field that these units, consisting of an absorber, still, coolers and minor auxiliary equipment can successfully lay claim to from a financial point of view, is for use in newly discovered fields where the ultimate amount or probable life of the gas supply is yet undetermined, and where the gas can be passed through the absorber with little or no investment in compressors and with a limited gathering system requirement. Under such conditions it can be fairly stated that such equipment will make possible the utilization of some of the flush gas which would otherwise be wasted while the larger capacity, but more economic, permanent plant is being constructed.

The end of the year finds the same complete harmony existing in the association which has prevailed from the beginning and I would be lacking in appreciation if I do not now acknowledge my indebtedness to the members at large, my fellow-members of the board of directors, to A. V. Bourque, our secretary, and to all members of committees who have contributed so much to make the office of President a pleasant one.

Four District Meetings for N. D. Jobbers

MINNEAPOLIS, MINN., May 8.—Four district meetings of the North Dakota Petroleum Association are scheduled to be held in May. Dates and places of meetings are: May 11, Fargo; May 12, Jamestown; May 13, Mandan; and May 14, Minot.

These meetings are for the purpose of discussing business conditions and bringing the association closer to jobbers, according to Paul E. Hadlick, who is acting as secretary of the North Dakota association, as well as of the Minnesota Petroleum Association.

CULBERTSON, NEB.—Kugler Oil Co. has added another service station at Hayes Center, Neb., according to C. B. Kugler, manager.

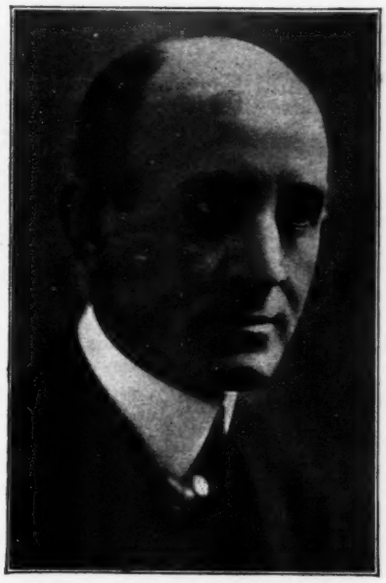
Many Addresses of Interest to Field Men on N. G. A. Program

CLEVELAND, O., May 10

PROGRAM for the twenty-first annual meeting of the Natural Gas Association of America has been announced. The convention begins on Monday, May 17, in Tulsa and on that same day will be held the annual business meeting of the affiliated organization, the Natural Gas Supply Men, Inc. Meetings will be held at the grounds of the International Petroleum Exposition and exhibits of equipment will be at the same grounds.

Monday will be devoted largely to meetings of technical and research sub-committees, to the annual meeting of the board of directors and to the annual dinner of the directors. The supply men, as usual, will serve luncheon each day to the entire convention. Local committees have arranged adequately for the entertainment of gas men and special features have been provided for the women who come from out of town.

On Tuesday the convention really gets under way and after the invocation, the address of welcome by the mayor and response by R. C. Sharp, of the Oklahoma Natural Gas Co., the president of the association, A. W. Leonard, of the Oklahoma Natural Gas Co., Tulsa, will make his formal address. Committee reports will then precede the first paper on the program which is "Natural Gas—Its Conservation and Significance to the Oil and Gas Operator," by E. O. Bennett, of the Bureau of Mines.



Guy F. Batchelor will attend his first convention as secretary of the Natural Gas Association.

Papers of interest to the natural gas distributor will be presented by John T. Naylon, of El Reno, Okla., division manager of the Oklahoma Gas & Electric Co. and by E. J. Stephany, Pittsburgh, superintendent of the sales department, Equitable Gas Co.

In the afternoon of Tuesday, Robert W. Hendee, Okmulgee, Okla., president of the Kingwood Pipe Line Co., will speak on "Field Development and Operating Economies" and Edward F. McKay, Oklahoma City, manager of the Oklahoma Utilities Association, will speak on "Association Service." There will be other committee reports.

Wednesday morning will be devoted to informal discussion of a number of topics having to do with field and distribution operations. In the afternoon, H. R. Pierce, Tulsa, of the Dunn-Lewis Oil Recovery Co., will speak on the care and operation of gas wells.

The annual banquet will be held Wednesday night. James A. Veasey, chief counsel of the Carter Oil Co., Tulsa, will be toastmaster. Chief speakers will be George E. White, Marietta, Ohio, former Democratic national chairman; Governor M. E. Trapp, of Oklahoma and Douglas Malloch, poet, of Chicago.

The convention ends on Thursday, following an address on laboratory methods by R. M. Conner, director of the appliance testing laboratory of the American Gas Association, Cleveland, and a number of reports of committees. The annual election of officers will be held just before adjournment.

Southeast Utah Well Is Again Active

By Telegraph

DENVER, May 10.—Telegrams to the Midwest Refining Co. from the Cane Creek well, southeast Utah, say that the well after swabbing five hours Saturday, flowed, but do not say how much it flowed or how long. Sunday the well made a small flow of emulsion with heavy gas pressure and they were not able to swab below 1100 feet. Sunday evening the well was quiet but there was heavy gas pressure between the 8 and 10-inch casings.

An official of the company says the emulsion is not in the oil itself but from water and much at the bottom of the hole and does not mean anything. They are certain that the seven feet of additional drilling did not put the hole into another sand but still is in the formation that has given so much trouble.

Telegram from other parties in the field at five o'clock this morning says the well flowed pure oil almost to the crown block Sunday and put 1000 barrels in tanks in a few hours, but this is not supported by the Midwest statement.

Oil Board Will Hear Statement By Charles Evans Hughes

WASHINGTON, May 10

THE Federal Oil Conservation Board has set May 27 as the date on which it will hear Charles Evans Hughes, as representative of the American Petroleum Institute, present the data he has prepared on the petroleum industry. It is understood that there are no limits on the time at his disposal and he is to present his arguments in such manner as he may choose.

Other oil men, whose names have not as yet been announced, are to appear before the oil board on the same date, according to Secretary of the Interior Work, chairman of the board. These are individuals who have asked the board, since its first open meeting in February, for an opportunity to appear before it to present their views on conditions in the oil industry.

While no statement has been made on this point, it is understood this May 27th meeting of the board will be open to the public, as was the February meeting.

Mr. Hughes was selected as representative of the Institute, to direct its policy in its contact with the oil board and to appear before the board to sum up the industry's presentation of its facts and data, at the last annual meeting of the Institute in Los Angeles. Because of prior engagements, he was unable to attend the February open meeting, and at that time, President Farish of the Institute asked the board to hear Mr. Hughes at a later date.

While the oil board has been at work the past two months preparing the report on the domestic oil industry it will submit to President Coolidge, final completion has been held up pending the presentation of material by Mr. Hughes at the May 27th meeting. Secretary Work has said, however, that final draft of the report will be ready for consideration not later than June 1. The board will then turn its attention to the two other phases of its complete report to the president, foreign oil conditions as affecting the American industry in the future, and the possible future development of substitutes.

Kansas Jobbers to Battle for Repeal Of Quantity Dump Discounts

By J. C. Chatfield
N. P. N. Staff Writer

WICHITA, May 8.

A. C. CARPENTER, President of the Lesh Oil Co., Ottawa, was elected president of the Kansas Oil Men's Association at its 12th annual meeting, held at the Lassen Hotel on May 7th. In the early days of the association, Mr. Carpenter was secretary of the group which honored him today. His efforts were partly responsible for the present strength of the Kansas Oil Men's Association which had 228 registrations at its convention today.

Joe S. Longshore, Sunflower Oil Co., Topeka, another of the pioneers in the oil business in Kansas, was elected first vice-president. Mr. Longshore was a refiner in the early days, Kansas State Oil inspector for a time and now an important jobber.

Rex Kent of the Kent Oil Co., Norton, was re-elected second vice-president. Other vice-presidents selected were; Harry Hart of the Dodge City Oil & Refining Co., and Harley Burger, of Burger & Adams, Coffeyville.

A. W. Long of the Long Oil Co., Manhattan, was re-elected treasurer of the association for about the "steenth" time. No one in Kansas can recall when Mr. Long was not trustee of the funds of the association.

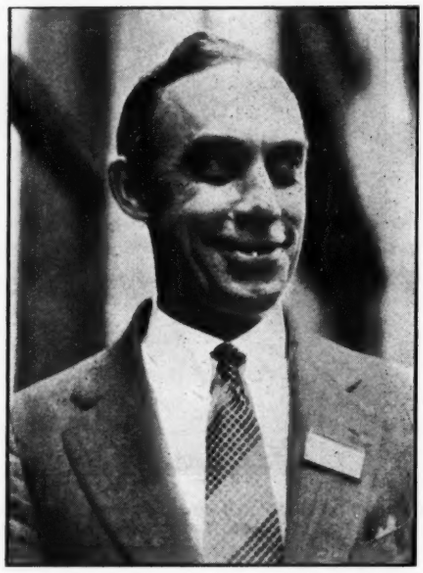
J. A. Motter, secretary, was re-elected again. Not only that, but the nominating committee demanded that the new executive committee give Mr. Motter a raise in salary.

Discount Troubles

WHILE other jobbers have the Q.D.A. to worry them, Kansas distributors have that with the addition of a state-wide quantity dump. A further irritant is the fact that Kansas has not enjoyed the tank wagon advances in line with the remainder of the states in the marketing territory of the Standard Oil Co., of Indiana.

In February the Indiana company advanced gasoline only ½ cent per gallon while it was making its general one cent advance. A little later, this half cent was taken away and a one-cent discount was inaugurated for all dumps of 50 gallons and over.

The Kansas farm trade generally buys gasoline in 50 gallon lots. It was estimated today that 90 per cent of the dumps in the state are affected. And tank wagon drivers naturally see to it in one way or another that the percentage is above 90 per cent. The Kansas schedule is thus virtually 2 cents under the remainder of the territory.



A. C. Carpenter of Ottawa, Kan., is informed he has been elected president of the Kansas Oil Jobbers Ass'n.

R. H. Garvey, Service Oil Co., Colby, asserted on the floor of the convention that the 50-gallon discount is a discrimination against Kansas competitors. He pointed out that the fact that the price is effective throughout the state prevents action in the state courts under the Kansas anti-discrimination law but suggested that discrimination might be shown as between states in an action brought in Federal courts. He urged that the Association hire an attorney and start action.

Mr. Longshore expressed the opinion that the quantity dump price is a confession on the part of the Standard that it is offering the motorist an inferior grade which cannot be sold on an even basis against its competitors. He said that when he was State Oil Inspector the Standard did 49 per cent of the gross business of the state while in 1925 this had been reduced to 25½ per cent. Mr. Longshore charged that other large chain station operators are worse competitors than the Standard Oil Co.

To Start Fight

NO action on the proposal of Mr. Gurney was made until the afternoon session following the address of L. V. Nicholas, President of the National Petroleum Marketers Association, who was asked to tell about plans of the National organization to wage a court battle for fair price adjustments

A motion was adopted then which instructed officers of the organization to attack the problem, either through the national association or by direct action.

Other discussion of marketing troubles involved the practice of making long hauls into the country without an extra charge. Many jobbers at the meeting expressed the belief that tank wagon and service station prices should be identical. One member stated that now jobbers haul gasoline 10 to 60 miles to sell it on credit and cheaper than they do from a pump for cash. He said that with a tank wagon price equal to the pump price and a charge for haulage the farmer would come into town for his gasoline and pay cash out of his cream checks.

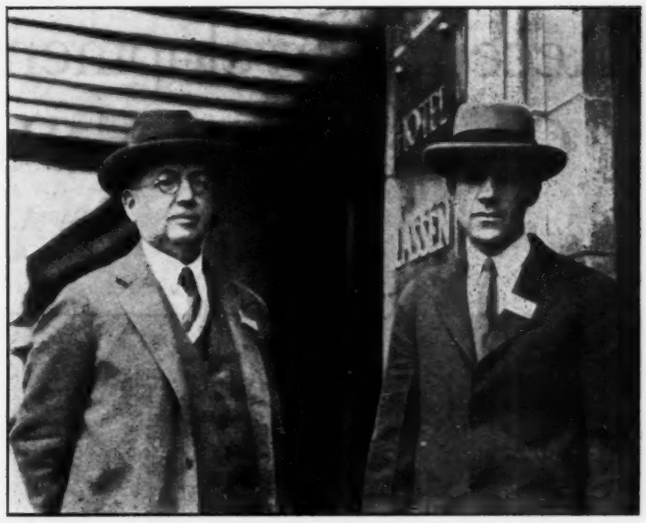
Mr. Nicholas urged jobbers to cease emulating the lightning bug which carries a torch on its rear and so that it can always tell where it has been but never where it is going. He quoted the statement that 60 per cent of the factors of life or death, success or failure, are not within the control of the individual. "If an association can reduce these factors as much as another ten per cent you can get an even break with these factors," he said.

Q.D.A. To Pass

RECALLING the rebate and pass abuses practiced by railroads in former days, Mr. Nicholas predicted that the Q.D.A. will not be permanent. He said that the American public will not stand for a retail price high enough to

C. W. Rice
Salesmanager for Vickers Petroleum Co., Wichita, Kan., demonstrating he's glad he's alive.

R. H. Garvey of Colby, Kan., and George P. Nissen, traffic manager for Vickers Petroleum Co., Wichita, stop, their "Q. D. A." discussion long enough to pose for the photographer.



John McE. Ames, president, and Lloyd Lesh, salesmanager, of the Kanotex Refining Co., Arkansas City, Kan. in front of Hotel Lassen, headquarters for the Kansas Oil Jobbers Ass'n. meeting.

permit distributors to give some favored customers lower prices.

He explained the plan of the National Petroleum Marketers Association to correct price injustices by vigorously pushing a test case to the Supreme Court. He indicated that the Tennessee case may be taken over for that purpose.

Charles M. Sutherland, secretary of the Nebraska Independent Oil Men's Association, appealed to Kansas jobbers near the Nebraska line to cease allowing discounts on quantity dumps to tank wagon customers across the state line. He expressed the fear that if the practice continues the quantity dump discount may spread through Nebraska as well as Kansas.

"Nebraska is not entirely out of the woods yet in spite of better conditions," Mr. Sutherland said. "If there is a tank wagon advance in Nebraska within the next ten days, Charley Bryan will run again for Governor. He has charged recently that oil companies are making profits enough to pay 400 per cent annual dividends."

Telling of the present marketing situation in the state, he said that 11 companies are selling 55 per cent of the gasoline and the remaining 400 companies 45 per cent. Of these 400, there are 80 companies selling more two cars and less than ten cars per month; 160 selling an average of more than one car and less than two, and 160 selling less than 1 car per month.

Will J. French, assistant State Oil Inspector, explained the recent ruling by his Department that colored gasoline may be sold in Kansas providing it is colored after having been inspected and found to be water white. It is necessary also to file a formula with the Inspector by means of which the gasoline may be restored to its natural color.

DISCUSSION of the inspection law brought out a marked difference of opinion between refiner and jobber. It was apparent that Kansas jobbers will insist on retaining the doctor test for their protection. Mr. Longshore declared himself as being both against eliminating the doctor test and trying to sell a cracked anti-knock gasoline for a premium. He professed inability to see why the product should bring a premium when it is the result of increased production sought to reduce refining costs. He referred to the recent anti-knock discussions as being refiner propaganda.

Ford L. Wright, Wichita, expressed the opinion that the use of dyes for gasoline recently has been only for the purpose of covering up a yellow product. He suggested getting a red bowl for the visible pumps.

Defense of yellow color of cracked gasoline was offered by C. L. Henderson, vice-president of the Vickers Petroleum Co., who asserted that the material can be treated to a permanent water white color at a somewhat higher expense but that the anti-knock properties are materially reduced by the treatment.

W. L. Rosier, Rosier Oil Co., Hutchinson, closed the argument by pointing out that problems of refiner and jobber are identical. He said that if refiners were still making only 61-63 motor gasoline the price would be so high that business would be very limited.

At the annual banquet in the evening Mr. Rosier was toastmaster and Isaiah Hale, safety director for the Santa Fe, principal speaker.

A method by which distributors can make their customers pay for evaporation losses was revealed by E. P. Hayes, president of the Hayes Equipment Co., Wichita, in a talk on marketing in the Orient. Mr. Hayes was telling of an experience in trying to sell visible pumps in China.

He was about to make a sale when the prospect backed off. The reason finally obtained was that in filling auto tanks from tins the customer paid for 5 gallons no matter how much might have leaked out of the can or evaporated in storage and transit. With a visible pump the customer could see how much he was getting.

Groesbeck Test of Pure Indicates New Field

Staff Special

HOUSTON, May 7

THE finding of 37 gravity crude in the Pure Oil Co's. No. 1 Stockton test, two miles and a half northwest of the city limits of Groesbeck, Limestone county, indicates the possibility that a seventh field has been opened in the Woodbine sand area of central east Texas. The well, which is good for 125 barrels daily by heads as it stands, was drilled eight feet into the second Woodbine horizon at total depth of 3140 feet. The well had made gas in the first Woodbine sand, from which main oil production elsewhere in the Mexia-Powell fault zone comes.

Pending the construction of storage tanks to take care of the oil, the Stockton test will not be deepened. When these facilities have been provided it will be drilled in further and the producing worth of the well ascertained.

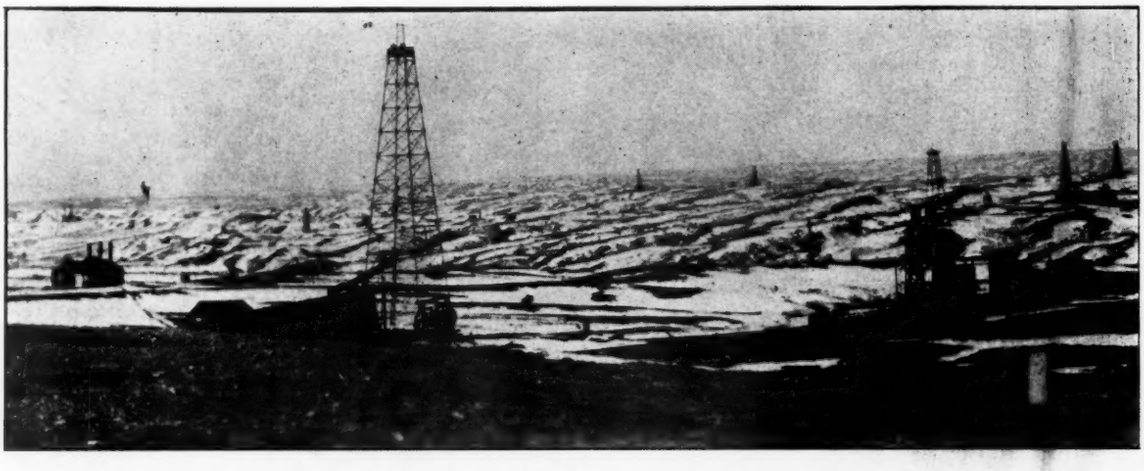
Although there is some acreage in the territory that is open for trading, the Pure is well protected around the well, which is hemmed in by earlier gassers or dry holes except for a narrow zone where oil production is possible.

The possible oil area is closely delimited on the south and east by old gas wells or failures drilled in other years. To the west is the northeast-southwest trending fault, which provides the structural vehicle for accumulation in this general territory; and to the northeast is the only direction where the "shoestring" of production may be possible of material extension.

Regardless of the future worth of the new area opened by the Pure's Stockton well, and this will have to be shown by later developments, it may be said with certainty that no such field as a Wortham, a Mexia or a Powell has been opened.

Recent Developments in Texas Panhandle Cause Upward Revision of Estimates

By A. F. Hinton
N. P. N. Staff Writer



This picture, showing a section of the Amarillo field development south of the Canadian River, was made at night just after a snow. T. A. Burgamy, of the Marland Oil Co., was the photographer.

AMARILLO, TEX., May 5

RECENT developments in the Texas Panhandle field have been of such a nature as to bring about a general revision upward of previous estimates as to its potentialities and future prospects; in fact, we may go as far as to say that our best estimators now find themselves beginning to wish they had not been quite so conservative. Estimates of the field's production 60 days hence, of its ultimate maximum, of its reserves, of its yields per acre, all are going up, along with prices of acreage and producing properties.

Several factors of the past few weeks' developments have combined to bring about this bullish tendency as to the field's prospects—but one stands out as the real reason for it all. It is safe to say that when Jim Pattison and his associates of the Lennix Oil Co. exploded 500 quarts of nitro in their well some weeks ago, they fired a shot that was heard all around the Panhandle, and changed the complexion of the field with a bang. This explosion brought in a well that made 540 barrels the first hour and better than 3000 barrels the first day; now, at more than three weeks old, it is still flowing 2700 barrels daily.

This was a better well than the Panhandle had any right to expect; with but few exceptions, other wells had entered upon their productive life in a much gentler and more subdued manner. They had started producing, however, under no such tremendous urge as that furnished by 500 quarts of nitro; on the contrary, up to the time that the Lennix crowd blasted their way to important production, the general idea had been that the recipe for bringing in Panhandle wells called for comparatively small shots, if any.

Epidemic of Shooting

THE immediate result of this epoch-making shot was an epidemic of shooting with big shots, both in wells just coming in and in those that had been producing prior to this outbreak. Production per well and average initial production of new wells, at once started mounting, for the heavy shooting seems to have been highly successful so far. So alarming was the prospect of a waste of the state's resources, in fact, that the Texas Railroad Commission stepped in and forbade shooting of wells unless pipe line connections and ample steel tankage facilities are on hand and available. This has slowed the orgy down a bit, but it probably will not be effective for long, as the pipe line situation will be greatly improved within a few weeks.

In addition to the campaign of heavy shooting, it seems that operators, as they become more familiar with the problems of bringing in their wells efficiently, are getting them on production in better shape, and with larger initial output than previous well performances had indicated would be the case. Experience is teaching them the best way to drill in the Panhandle, where to set pipe and how to handle it, how to make the best use of the gas in flowing their wells, how to keep them flowing at maximum, and how best to handle the crude after getting it above ground.

Scramble for Acreage

ALTHOUGH acreage buying had not slumped noticeably, it showed a decided quickening of activity shortly after the Lennix well was shot, an activity that has been increasing constantly for the past two weeks. This buying spurt has made itself felt in wildcat territory as well as in proven areas and many important deals have been made. Leasing has rapidly extended into Hartley county, which undoubtedly is due for a big play, on north through the Texas Panhandle, and into the Oklahoma Panhandle, where a number of tests already are going down, especially in Texas county.

In the Hutchinson county field, scarcely a week passes without news of a deal by which producing property changes hands at fancy figures. One of the most important of recent deals was that by which the J. K. Hughes Developing Co., of Mexia, which became notable through its Powell operations, bought the holdings of the Twin Six Oil Co. This deal included one well producing about 210 barrels and five wells drilling, with about 500 acres of leases. The producing well is the famous Twin Six & Jim Ward No. 1 Kingsland, in the NEc of section 6, block Y, which has been producing since December, 1924, and has made a remarkable record of sustained production. Its history was given in National Petroleum News, issue of Feb. 24, 1926.

Consideration involved in this purchase was reported to be $600,000 in cash and $900,000 in oil, the oil to be paid out of one-fourth of the production. The Twin Six Oil Co. is an Amarillo concern and one of the earliest operators in the Hutchinson county development. One feature of the deal was that J. D. Ward retained his interest in the

100 acres on which the No. 1 well is located.

ANOTHER deal on the verge of consummation is that through which Amerada Petroleum Corp., a newcomer in the Panhandle, is taking over the properties of the Douglas Oil Co., on the north side of the river. Amerada has been making a 10-day gauge of the property, under an option which expires today, and there seems little doubt, in view of recent developments in that part of the field, that it will exercise its option and acquire the property.

This property consists of two producing wells making about 250 barrels daily and one well drilling, with a considerable block of well-located acreage. The two producing wells are in sections 20 and 21, block 47, adjoining the Gulf-Panhandle holdings. The drilling well is in the SEc of section 15, block XO2, about two miles northwest of the Gulf Production Co. No. 6 Dial, which came in last week making 1600 barrels a day natural. Consideration involved in this deal was reported to be $580,000 cash and $300,000 in oil. About 960 acres are involved.

Recent Developments

DEVELOPMENTS have come thick and fast in the field in the past 10 days, several widely separated big wells, coupled with reports of other alleged to be big, having caused interest all over the field, and making it difficult to pick out the one most important feature, Perhaps the outstanding new well of recent weeks is the Gulf Oil Production Co. No. 6 Dial, in the SW¼ of section 1, block 1, on the north side of the river. This well, which is about three-quarters of a mile from the nearest production, started off at the rate of 1600 barrels a day after topping the pay at 2857 feet and getting the big pay from 2905 to 2920 feet. It is now making better than 1000 barrels daily and has not been shot. The size of this well makes the north side look much better from a production standpoint than it had before, and is one of the factors we mentioned earlier in this article, tending to cause upward revisions of previous estimates.

Interest also has been centered on the well of the Badger Oil Co., some four miles east of production, in section 8, B. S. & F. block 23, Hutchinson county. This well, which is known as No. 1 Lewis, has had several showings of gas and oil and was finally shot with 210 quarts from 2880 to 2960 feet, the latter depth being 250 feet off bottom. It has been difficult to get accurate information as to its production, but early reports were to the effect that it flowed 120 barrels in the first two hours after cleaning out the bridge after the shot. Latest reports have it swabbing 50 barrels a day, so that it does not look like very much of a well at present.

Dixon Creek Deepened

DURING the past week, Dixon Creek Oil Co. No. 1 well, in the SEc NE of section 14, block Y, one of the most famous wells in the field, and a northwest diagonal offset to the Lennix well, was drilled five feet deeper, according to reports, and flowed 825 barrels in the first four hours thereafter. Original sand record on this well was 2947 to 2960 feet, from which it started off at the rate of 200 barrels a day, Jan. 3, 1925. At last reports it was still flowing better than 200 barrels an hour. All of the increase came in the first three feet of deepening. As far as is known, the well has not been shot, but is flowing naturally as a result of the deeper drilling.

The south offset to this well, and the west offset to the Lennix well, is the J. R. Phillips & Curry No. 1 Smith, in the NEc SE¼ of section 14. This well is reported in the pay from 2903 to 2980 feet and was supposed to be making 200 barrels daily before being shot. It was given a large shot a few days ago, after which the hole bridged, and at last reports the well was being cleaned out. The Lennix well, which is now three weeks old, has put about 64,000 barrels of oil into the pipe lines, an average of more than 3000 barrels daily over the period, and according to recent reports from the field, it made 2420 barrels in the past 24 hours.

Another well north of the river that has been attracting much attention is the Golding-O. R. Phillips No. 1 Hodges, in the SE¼ of section 1-A, block M-26, about two and a half miles southwest of the Gulf No. 6, the 1600-barrel well already mentioned. The Golding-Phillips well has been drilled to 2815 feet total depth, and early reports were to the effect that it started off flowing 25 barrels an hour naturally. As far as can be learned now, however, it is showing for less than 100 barrels a day before being shot.

Texas Panhandle Production by Companies Week ending May 5.

Carson County

	Bbls.
Amarillo Oil Co.	60
American Refg.	571
Gates Oil Co.	19
Gulf Prod.	143
Marland Oil	1,166
W. W. Silk	87
Skelly Oil	132
Sunny Jim Oil	60
Texas Co.	146
Total	2,384

Gray County

Clark et al	6
H. F. Wilcox O. & G.	512
Empire	8
Total	526

Wheeler County

Midwest Explo.	19
Gibson-Rook	60
Texhoma	15
Total	94

Hutchinson County

American Refg.	20
Phillips-Parks	372
Lennix Oil	2,700
Dunnigan et al.	450
Barnum	20
Canadian River Oil	130
Centerfield	...
Dixon Creek Oil	1,608
Douglas Oil	250
Gulf-Panhandle	1,900
McIlroy	607
McIlroy-Herring	130
Middleton	30
Native Oil	76
New Domain Oil	30
Phillips-Gibson	298
Phillips-Pulaski	166
Phillips-Coble	747
Prairie O. & G.	55
Roxana Pet.	505
Phillips	120
Skiatex Oil	600
Summit Oil	...
Sunny Jim Oil	526
Travelers Oil	160
Twin Six Oil	210
Westex Oil	1,030
Whittington	60
Empire	8
White Eagle	303
Holmes et al.	240
Newmby et al.	120
Currie-Phillips	150
Smith-Bynum	630
Phillips-Williams	772
Total	15,023

Summary

Carson County	2,384
Gray County	526
Wheeler County	94
Hutchinson County	15,023
Total	18.027

Another Big Shot

ANOTHER example of big shooting was that of the Travellers Oil Co. No. 1 Kingsland, in the SW NE of section 6, block Y, slightly more than a mile and a half east of the Lennix well. This well was completed April 29 with initial production of 225 barrels in pay from 2877 to 2930 feet. During the past week, it was shot with 505 quarts, after having declined to 130 barrels daily, and started off flowing, making 205 barrels the first hour after the shot. This well is a south offset to the former Twin Six property, now owned by the J. K. Hughes Developing Co.

Production 18,000 Barrels

PRODUCTION in the Panhandle actually being run to pipe lines averaged 18,027 barrels last week. Of this amount, Hutchinson county had 57 wells producing 15,023 barrels a day, an average of 264 barrels per well per day. It is noteworthy that the per-well average production has been increasing steadily for several weeks, this being due in part to recent big wells and in part to better pipe line facilities now available. Carson county is producing 2384 barrels daily, Gray county 526 barrels, and Wheeler county 94 barrels. The pipe line runs are divided approximately as follows:—Magnolia Pipe Line Co., 4000 barrels; Plains Pipe Line Co., 7000 barrels; and Pantex Pipe Line Co., 7000 barrels.

The Marland 8-inch welded line probably will be running oil in another week or 10 days, as it is practically complete now. The Gulf's 8-inch screwed line also is nearing completion, with May 15 fixed as the estimated date of completion. This company has one 55,000 barrel tank built north of the river and has started on the second, with grade ready for the third. It was putting in the Canadian river crossing early this week. While some oil is being moved out of storage in the field, it is probable that at least 15,000 barrels of the total pipe line runs of 18,000 barrels is being run from wells; it also seems likely that the Panhandle could produce 25,000 barrels a day at this time, if all

the wells could be operated to capacity into storage or pipe lines. Some of the larger companies estimated that the field would reach 25,000 barrels a day by May 1, but a number of recent large wells have tended to move that date up somewhat.

The latest drilling report available shows that in the Panhandle there are 213 wells drilling, 12 shut down, and 19 first reports, making a total of 244 operations under way at various stages of development. Of the 213 drilling wells, some 74 are located in areas already proven for production and are drilling below 2000 feet. It is believed that all of these 74 wells will be ir by June 1. There are 129 wells drilling in Hutchinson county alone.

Lea County, N. M., Test Gets Good Showing

By Telegraph

HOUSTON, May 9.—Maljamar Petroleum Co.'s test on the Baish permit in Lea county, N. M., which is described in a special article on page 49, this issue, has now penetrated to 3655 feet where it is drilling in hard lime formation. Saturated sandy lime streaks were found at 3603 and 3647 feet, the horizon just below 3600 feet yielding enough oil to stand 200 feet in the hole.

Additional acreage in this territory is changing hands, the Texas Production Co., Humble Oil & Refining Co. and Barnett et al, of Amarillo, having now acquired properties. The Humble obtained approximately 6000 acres northeast of the Maljamar well, taking over sections 10, 12, 13, 14, 15, 21, 22, 23 and 27, all in township 14, range 33. Barnett et al took over sections 20, 22, 23, 26, 27, 28, 33, 34, 35 and the west half of the west half of 23, the west half of the west half of 25, the south half of the south half of 15, all in township 18, range 34.

English Oil Congress Postponed

CLEVELAND, May 10.—The International Oil Exposition and Petroleum Congress which was to have been held this year in England has been postponed until 1927 to permit interested companies to prepare exhibits which could not have been made ready this year, Consul Robert B. Macatee, London, has written the Department of Commerce at Washington.

Franklin, Pa., May Oust Curb Pumps

FRANKLIN, PA., May 10.—An ordinance to oust gasoline curb pumps here has passed two readings in council and is expected to pass a third reading at the next council meeting. A previous curb pump ouster was nullified in court because of an advertising technicality.

Shipments from Los Angeles Week Ended May 8

(Barrels of 42 Gallons)

	Crude	Gasoline	Gas Oil	Fuel Oil	Tops	Kerosene	All Products
Atlantic Domestic	639,801	76,702	.....	.....	.....	.....	716,503
Atlantic Foreign	201,147	236,580	.....	91,427	.....	.....	529,154
Pacific Domestic	603,728	61,887	.....	.....	.....	.....	665,615
Pacific Foreign	41,665	.....	.....	267,398	.....	.....	309,053
Total Shipments Week Ended May 8							2,220,324
Total Shipments Week Ended May 1							1,655,546
Total Shipments Week Ended April 24							2,332,429

Ships Clearing for the Atlantic Coast

David McKelvey to Boston with 78,000 barrels crude for Tide Water Oil Co.

Hagood to Boston with 77,000 barrels crude for Cities Service Refining Co.

Pennsylvania to Port Arthur with 74,020 barrels crude for Standard Oil Co.

W. S. Miller to Fall River with 74,020 barrels crude for Standard Oil Co.

Swiftwind to Fall River with 77,863 barrels crude for Swiftsure Oil Co.

Dixie Arrow to Bayonne with 91,000 barrels crude for Standard Transportation Co.

Albert Hill to Philadelphia with 79,000 barrels crude for General Petroleum Corp.

Franklin K. Lane to Baltimore with 76,702 barrels gasoline for Pan American Petroleum Co.

C. T. Dodd to Fall River with 77,000 barrels crude for Standard Oil Co.

Lafe S. Collins, Iowa Jobber, Dies Suddenly

CHICAGO, May 10.—Lafe S. Collins died suddenly at 2:30 p. m., May 7 at his home in Knoxville, Ia. He was president, treasurer and general manager of the S. L. Collins Oil Co., Knoxville. The company bears the name of its founder, father of Lafe Collins. Mr. Collins is survived by his widow and four children, all living and married. He was 60 years old.

Mr. Collins had been at his office until he went home at lunch time, appearing to be in his usual health. After he had eaten he complained of not feeling well and went to his room. After lying down for a short while he was seized with acute indigestion and lived only a short time. The funeral was held at 4 p. m., May 9, at the Methodist church in Knoxville.

Oil men all over the United States knew Lafe S. Collins. He grew up with the business in Iowa. At state and national meetings he has long been conspicuous for towering stature, convincing oratory and masterful personality. The S. L. Collins Oil Co. is one of the conspicuously successful Independent oil jobbing firms in the country. Mr. Collins was a personal friend of R. L. Welch, secretary of the American Petroleum Institute, before the latter ever contemplated oil association work.

Moves Cargo From New Plant

HOUSTON, May 10.—Keen & Woolf Oil Co. reports it has made its first cargo shipment since the opening of its Houston ship canal plant. This was a cargo of 6000 tons to Copenhagen. Another cargo is committed for movement in late June or early July.

Late T. W. Changes

NEW YORK, May 10.—Standard Oil Co. of New Jersey and Standard Oil Co. of Louisiana advanced kerosene for export ½ cent at Atlantic seaboard and at the Gulf respectively. Last previous change was ¼ cent advance on April 30.

* * *

Continental Oil—T.w. price gasoline at Pueblo advanced 1 cent, s.s. 3 cents, to 21 cents and 23 cents respectively, May 10. Prices formerly were 20 cents both t.w. and s.s.

Crude Changes

FINDLAY, O.,—On May 6 Ohio Oil Co. reduced Sunburst, Mont. crude 10 cents at wells, to $1.05 per barrel.

* * *

SHREVEPORT,—On May 5 Standard Oil Co. of Louisiana regraded and advanced El Dorado light crude from 10 to 20 cents. The revision of grades includes Lisbon crude. New grades added to the schedule and new prices are:

37 and above, $2.05; 35 to 36.9, $1.95; 33 to 34.9, $1.85; and below 33 gravity, which remains $1.75.

California Fuel Strengthening

LOS ANGELES, May 7.—Fuel oil is regaining some of the strength it held for many years prior to the slump caused by over production in 1923 and following years. There is a tendency for fuel oil to move to the east coast. There is also an increase in the volume of fuel oils being shipped to foreign countries, particularly to the South American countries.

Compilation Of Mid-Continent Refinery Operations

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Mid-Continent Refinery Operations Week Ended May 7 (By Telegraph)

	Kansas	%Change Previous Week	Oklahoma	%Change Previous Week	No. & Cent. Texas	%Change Previous Week	No. La.-Ark.	%Change Previous Week	Totals	%Change Previous Week	Totals Week Ended April 9
Plants Reporting	23		46		41		14		124		124
Daily Cap. (Bbls.)	98,200		165,900		144,300		51,700		460,100		460,100
Da. Av. Crude Runs	56,197	+ 4.9	94,544	— 9.9	61,968	— 8.8	47,589	+ 2.8	260,298	— 4.5	232,922
Da. Av. Other Oils	6,852	+ 2.6	9,785	+290.5	5,165	+28.9	—473	.....	21,329	+58.6	9,703
GASOLINE—Gallons											
Stocks April 30	12,228,317		46,933,167		18,607,357		7,165,976		84,934,817		91,466,507
Prod. 4-30 to 5-7	9,194,306	+ 5.8	13,050,967	— 9.9	7,292,362	— 2.0	3,015,162	— 8.5	32,552,797	— 4.0	28,706,024
Ship. 4-30 to 5-7	9,824,347	— 1.7	16,983,420	— 2.1	7,889,201	+ 4.9	3,574,971	+ 8.6	38,271,939	+ 0.3	29,708,940
Stocks May 7	11,598,276	— 5.2	43,000,714	— 8.4	18,010,518	— 3.2	6,606,167	— 7.8	79,215,675	— 6.7	90,463,591
Ratio Sales to Prod	106.9%		130.1%		108.2%		118.6%		117.6%		103.5%
KEROSENE—Gallons											
Stocks April 30	1,462,483		2,814,520		1,215,579		401,594		5,894,176		8,185,256
Prod. 4-30 to 5-7	1,314,351	— 2.3	2,864,630	— 7.9	1,219,998	+ 7.3	516,396	+ 6.1	5,915,375	— 2.7	4,803,602
Ship. 4-30 to 5-7	1,483,259	+ 9.4	2,903,838	— 3.2	1,177,449	+12.8	562,433	+31.2	6,126,974	+ 5.1	5,327,544
Stocks May 7	1,293,580	—11.5	2,775,312	— 1.4	1,258,128	+ 3.5	355,557	—11.5	5,682,577	— 3.6	7,661,314
Ratio Sales to Prod	112.8%		101.4%		96.5%		108.9%		103.6%		110.9%
STOVE DISTILLATE—Gallons											
Stocks April 30	514,545		1,783,428		234,345		28,182		2,560,500		2,632,974
Prod. 4-30 to 5-7	511,253	— 8.8	567,811	+ 1.3	313,420	—18.3	28,854	+32.9	1,421,338	— 6.9	2,145,517
Ship. 4-30 to 5-7	267,139	—31.2	441,361	+ 0.8	356,673	+ 6.0	10,080	—51.5	1,075,253	— 9.1	2,542,697
Stocks May 7	758,659	+47.4	1,909,878	+ 7.1	191,092	—18.5	46,956	+66.6	2,906,585	+13.5	2,235,794
Ratio Sales to Prod	52.3%		77.7%		113.8%		34.7%		75.6%		118.5%
GAS OIL—Gallons											
Stocks April 30	7,561,826		35,056,585		6,324,524		6,691,284		55,634,219		52,721,130
Prod. 4-30 to 5-7	1,536,430	+ 0.6	2,336,033	+40.8	529,528	+ 1.1	2,079,854	— 4.1	6,481,845	+10.3	4,686,373
Ship. 4-30 to 5-7	1,333,695	+ 5.8	1,586,584	+11.1	100,335	—66.1	3,598,922	+53.3	6,619,536	+24.1	4,554,908
Stocks May 7	7,764,561	+ 2.7	35,806,034	+ 2.1	6,753,717	+ 6.8	5,172,216	—22.7	55,496,528	— 0.2	52,852,595
Ratio Sales to Prod	86.8%		67.9%		18.9%		173.0%		102.1%		97.1%
FUEL OIL—Gallons											
Stocks April 30	5,489,207		36,314,958		19,458,606		4,945,152		66,207,923		65,432,903
Prod. 4-30 to 5-7	5,193,444	+ 9.3	9,141,953	— 4.2	8,360,160	— 8.7	7,742,776	+ 0.6	30,438,333	— 2.3	25,337,487
Ship. 4-30 to 5-7	4,356,183	+ 0.6	7,569,921	—13.2	7,970,210	— 6.6	7,268,461	+ 0.5	27,164,775	— 5.7	27,393,892
Stocks May 7	6,326,468	+15.3	37,886,990	+ 4.3	19,848,556	+ 2.0	5,419,467	+ 9.6	69,481,481	+ 4.9	63,416,498
Ratio Sales to Prod	83.9%		82.8%		95.3%		93.9%		89.2%		107.9%

Gasoline Shipments Set New High Record for Year

By Telegram

TULSA, May 11

CONTINUING to ship gasoline at the tremendous rate established during the last week in April the 124 refineries in the Mid-Continent from which National Petroleum News gathers operating figures reduced their gasoline stocks 5,700,000 gallons during the week ended May 7. Shipments which increased a little over 100,000 gallons over the previous week, reached 38,271,939 gallons. This record is the highest for this year and is only 1,000,000 gallons below the peak for 1925 reached during June.

Crude charges were reduced 12,000 barrels per day to a daily average of 260,298 barrels. Oklahoma and Texas refiners led in the reduction of runs which brought gasoline production for the week down to 32,552,797 gallons, a reduction of 1,400,000 gallons from the previous week. As a result of the large reduction of gasoline stocks, reserves of the 124 plants are almost as low as a year ago. Total stocks on May 7 were 79,215,675 gallons as compared with 75,078,793 gallons at 118 plants on May 8, 1925.

Kerosene stocks continued to fall slowly. At the end of the week total reserves were 5,682,577 gallons which is less than the shipments for last week. Heating distillate stocks increased 400,000 gallons to 2,906,585 gallons.

Fuel oil shipments declined 1,700,000 gallons during the week to 27,164,775 gallons and production was reduced a little less than 1,000,000 gallons to 30,438,333 gallons. Stocks increased 3,200,000 gallons to 69,481,481 gallons.

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended May 7. Change in stocks figured from Apr. 9.

Gasoline

	Gallons
Production	128,826,921
Shipments	140,074,837
Net change in stocks	—11,247,916
Ratio sales to production	108.7%

Kerosene

	Gallons
Production	22,102,168
Shipments	24,080,905
Net change in stocks	—1,978,737
Ratio sales to production	109.0%

Stove Distillate

	Gallons
Production	5,608,953
Shipments	4,938,162
Net change in stocks	+670,791
Ratio sales to production	88.0%

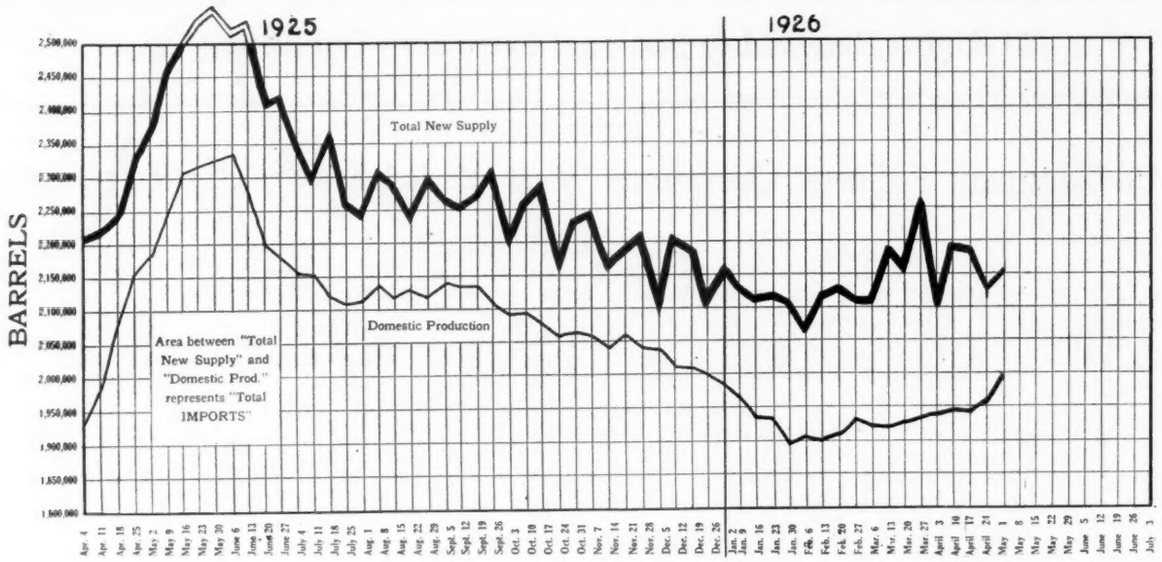
Gas Oil

	Gallons
Production	24,020,759
Shipments	21,376,826
Net change in stocks	+2,643,933
Ratio sales to production	89.0%

Fuel Oil

	Gallons
Production	117,822,242
Shipments	111,757,259
Net change in stocks	+6,064,983
Ratio sales to production	94.9%

Daily Average Crude Oil Production and Imports



Daily average gross crude output of United States, by fields, for week ending with dates given below, as compiled by American Petroleum Institute

OKLAHOMA

	May 8	May 1
North Braman	1,900	2,300
South Braman	12,750	11,350
Blackwell	4,300	4,200
Hubbard	1,950	1,900
Thomas	4,400	5,050
Tonkawa	38,150	37,050
Garber	39,750	34,150
Burbank	41,150	41,050
Osage, outside Burbank	33,400	33,250
Watchorn	2,650	2,450
Cushing	21,850	21,850
Yale Jennings	17,850	17,850
Davenport	13,650	15,200
Bristow-Slick	29,850	29,900
North Okmulgee	17,750	17,800
Lyons-Deaner	4,300	4,300
Stroud	2,350	2,350
Cromwell	18,400	18,050
Papoose	12,200	12,100
Wewoka	32,200	34,900
Duncan district	7,200	7,250
Graham	9,350	9,500
Fox	4,400	4,200
Healdton	14,900	14,900
Hewitt	12,200	12,200
Others	66,550	68,000
Total Oklahoma	465,400	463,100
Increase		2,300

KANSAS

	May 8	May 1
Florence-Covert	1,700	1,700
Peabody-Elbing	4,400	4,350
Eldorado-Towanda	14,000	13,900
Augusta-Fox-Bush	4,850	3,700
Rainbow Bend	4,450	4,700
Russell	5,700	5,550
Greenwood County	43,450	44,000
Others	26,600	27,250
Total Kansas	105,150	105,150

NORTH LOUISIANA

Homer	5,800	5,800
Haynesville	10,350	10,300
Caddo, light	9,050	8,650
Caddo, heavy	2,100	2,150
De Soto, Red River	3,950	3,950
Elm Grove	550	550
Bellevue	2,500	2,500
Cotton Valley	8,600	8,600
Urania	12,150	11,950
Total North Louisiana	55,050	54,450
Increase		600

ARKANSAS

El Dorado	7,650	7,450
Smackover, light	17,500	17,650
Smackover, heavy	134,700	132,750
Stephens	1,950	1,850
Nevada	3,300	3,000
Lisbon		10,500
Total Arkansas	175,750	173,200
Increase		2,550

NORTH TEXAS

	May 8	May 1
Burkburnett	12,250	12,350
Electra	16,200	16,250
Iowa Park and K-M-A	4,250	4,500
Wilbarger	12,600	12,700
Panhandle	18,200	16,500
Petrolia	500	500
Archer County	31,350	31,700
Others	2,500	2,000
Total North Texas	97,850	96,500
Increase		1,350

EAST CENTRAL TEXAS

Mexia	13,300	13,100
Currie	1,050	1,100
Richland	1,700	1,700
Corsicana-Powell	30,600	30,200
Wortham	9,650	9,250
Total East Central Texas	56,300	55,350
Increase		950

WEST CENTRAL TEXAS

Stephens County	13,150	13,300
Eastland County	5,950	6,000
Desdemona	2,600	2,650
Young County	7,600	7,650
Palo Pinto County	500	500
Callahan County	3,300	3,350
Shackelford County	5,650	5,700
Reagan County	33,600	32,200
Others	10,050	10,000
Total West Central Texas	82,400	81,350
Increase		1,050

SOUTHWEST TEXAS

	May 8	May 1
Luling	22,700	22,950
Mirando	6,800	6,800
Somerset	2,150	2,150
Lytton Springs	6,300	6,350
Piedras Pintas	200	200
Others	600	600
Total Southwest Texas	38,750	39,050
Decrease		1,700

GULF COAST

Goose Creek	8,750	8,750
Hull	21,600	22,200
Saratoga	1,150	1,100
Blue Ridge	1,100	700
Damon Mound	850	950
Batson	1,150	1,150
West Columbia	8,900	9,250
Humble	3,850	3,800
Pierce Junction	1,250	1,250
Sour Lake	4,050	4,050
Spindletop	3,400	3,650
Orange County	11,550	10,750
Edgerly	100	1,100
Evangeline	1,050	1,050
Vinton	6,500	6,450
Lockport	5,250	5,500
South Liberty	5,200	5,350
Big Creek	1,100	1,000
Boling	6,800	8,400
Others	1,200	1,300
Total Gulf Coast	95,800	97,750
Decrease		1,950

ROCKY MOUNTAIN

Wyoming

	May 8	May 1
Salt Creek	53,600	56,850
Grass Creek	2,900	3,000
Elk Basin	650	550
Big Muddy	3,500	3,500
Lost Soldier	4,450	4,350
Rock River	2,850	3,200
Teapot Dome	1,400	1,450
Others	4,700	4,650
Total Wyoming	74,050	77,550
Decrease		3,500

Montana

Cat Creek	2,900	2,950
Sunburst	25,900	24,000
Total Montana	27,900	26,950
Increase		950

Colorado

Moffat (Craig)	3,600	3,250
Fort Collins	2,550	2,750
Florence	350	350
Others	500	450
Total Colorado	7,000	6,800
Increase		200

New Mexico

Artesia	3,000	3,000
Hogback	450	450
Rattlesnake	200	450
Total New Mexico	3,650	3,900
Decrease		250
Total Rocky Mountain	112,600	115,200
Decrease		2,600

CALIFORNIA

	May 8	May 1
Santa Fe Springs	50,000	50,000
Long Beach	103,000	104,000
Huntington Beach	46,500	46,000
Torrance	27,000	26,500
Dominguez	20,500	21,000
Rosecrans	17,500	18,000
Inglewood	53,000	53,000
Midway-Sunset	94,000	92,500
Others	192,500	194,000
Total California	604,000	605,000
Decrease		1,000

EASTERN

(Including Ill., Ind., Ky., Ohio, W. Va., Pa., and N. Y.)	105,000	104,000
Increase		1,000

PRODUCTION SUMMARY

Prod. east of Rockies	1,390,050	1,385,100
Increase		4,950
Total Prod. in U. S.	1,994,050	1,990,100
Increase		3,950

Oklahoma Production Again Increases With Garber Principal Factor

By A. F. Hinton
N. P. N. Staff Writer

OKLAHOMA production registered its third successive gain during the past week, when it increased 2055 barrels to 465,080 barrels daily average, according to National Petroleum News' estimate. The principal factor in this week's increase was the Garber field, which is embarked on another upward movement under the stimulus of new wells in the Tonkawa sand, and which boosted its output some 5600 barrels a day. This gain was cut down materially by a 2700-barrel decline at Wewoka and one of 1500 barrels at Davenport. The North Braman field continues to increase, gaining an even 1000 barrels in daily average during the week.

Garber is undergoing a revival of drilling as a result of the finding of production in the Hoover, Tonkawa, and Layton sands, in addition to the long list of other productive sands already exploited in the field. This field is developing the most remarkable multiplicity of producing horizons in the Mid-Continent area, and with the discovery of each new oil level, a rush of drilling takes place, usually followed by a large increase in production.

The field is now on the upward swing of one of these movements, and is making practically 40,000 barrels a day, a gain of 7000 barrels in the past three weeks. So far 12 wells have been completed in the three sands mentioned above, and their output accounts for nearly one half of the field's total. As a result of the showing of these wells, 81 operations are under way, all of which will be drilled to the one of the three sands. Of these, about 15 wells are now being completed and another group of about 25 will be due in sometime between now and June 1.

This policy of exploiting so many different sands has resulted in a close grouping of derricks at each location, giving an aspect of town-lot drilling to the field. Some locations have five or six derricks in close proximity to each other, of which several may be drilling at the same time, each destined for a different horizon. Most companies have adopted the plan of giving all wells on one location the same number, with a letter following the number indicating the sand to which the well is drilling or from which it is producing. Thus a well marked 3-W is in the Wilcox sand, 3-H in the Hoover, 3-L in the Layton, and so on.

Two big wells drilled in during the past week have been largely instrumental in increasing the field's output, and have also brought more glory and renown to the already famous Schroeder lease of the Roxana Petroleum Corp., a lease that has proven highly prolific in a number of different sands. The Roxana's No. 7-H Schroeder, in the SEc NW SW of 18-22-3W, is the latest big well. It got the sand from 3005 to 3047 feet, started off at the rate of 250 barrels an hour and averaged 200 barrels an hour for the next 15 hours.

The same company's No. 6-H Schroeder, in the NEc SW SW of 18, topped the lower Hoover sand at 3116 feet and at four feet in, was flowing 140 barrels an hour. The Roxana's No. 3-L on this lease, in the NWc SW SW of 18, got the sand at 3098 feet and when drilled to 3116 feet, flowed 2430 barrels in the first 10 hours. Prior to this, the company drilled in its No. 2-L, with initial production of 1040 barrels at total depth of 3146 feet.

THE deep sand area of the Wewoka deep sand area now has 12 completed wells making 24,263 barrels daily, as compared with last week's record of 27,198 barrels from 10 wells. The eleventh well added to the list was the Magnolia Petroleum No. 5 Skinner Harjo, in the CWL SW NW of 5-7-8, which was erroneously reported in these columns last week as No. 5 Franz. This well topped the deep sand at 4167 feet and produced 2150 barrels the first 24 hours after having been drilled to 4193 feet. It is maintaining about that production at a week old. The twelfth well was the Prairie Oil & Gas Co. No. 1 Walker, in the SWc SE of 32-8-8, midway between the Magnolia discovery well and the Dixie Oil Co. No. 1 Garner, which extended the field nearly a mile east. The Prairie well started off making 2642 barrels in 24 hours after having been drilled to total depth of 4198 feet, and is making 2380 barrels at present.

The second of these deep wells to go dead on account of intrusion of salt water was the Magnolia's No. 2 Skinner-Harjo, one location east of the discovery well, which was the first one to go dead. This well had been making nearly 5000 barrels daily, but it and No. 1 together are now making only 164 barrels. The next deep well in should be the Prairie Oil & Gas Co. No. 1 Hawkins in 6-7-8. This well was drilling at 4180 feet at last reports.

Wewoka deep sand production for the past 24 hours was divided by companies as follows:—

Company	Well No.	Lease	Prod.
Magnolia	1 and 2	Harjo	164
Magnolia	3 and 5	Harjo	5,180
Magnolia	3	Franz	3,214
W. R. Ramsey	4	Amos	1,945
Homaokla	2	Carolina	2,730
Amerada	1 and 3	Harjo	6,377
Indep.-Atlantic	1	Simon	1,000
Dixie Oil	1	Garner	1,273
Prairie	1	Walker	2,380
	12	Total	24,263

Drilling Operations in Oklahoma, Kansas and North Texas

	May 8 — Week Ending — May 1									
	Loc.	Rigs	Drg.	S.D.	Total	Loc.	Rigs	Drg.	S.D.	Total
OKLAHOMA										
Burbank	1	7	34	1	43	2	11	29	1	43
Other Osage	8	14	56	4	82	6	16	55	9	86
Bristow-Cushing	21	29	182	38	270	29	31	177	36	273
North Oklahoma	10	40	190	74	314	13	44	181	73	311
South Oklahoma	21	31	164	39	255	20	37	165	31	253
Muskogee	...	8	48	9	65	...	9	38	15	62
Okmulgee-Bristow	8	71	139	34	252	9	66	123	28	226
Tonkawa	1	...	7	1	9	1	...	7	1	9
Wewoka-Cromwell	24	34	147	27	232	24	26	137	27	214
Total Oklahoma	94	234	967	227	1522	104	240	912	221	1477
KANSAS	74	115	244	101	534	89	104	230	111	534
NORTH TEXAS										
Eastland County	...	6	48	6	60	...	6	56	10	72
Stephens County	...	11	37	18	66	...	17	37	11	65
Texas Panhandle	...	74	140	17	231	...	62	133	24	219
Mexia District	...	...	2	2	4	...	...	2	4	6
E. Texas Wildcats	...	1	8	16	25	...	4	5	18	27
W. Texas Wildcats	...	88	282	86	456	...	77	264	86	427
Wichita Falls	...	60	159	36	255	...	71	152	42	265
Total N. Texas	...	240	676	181	1097	...	237	649	195	1081
GRAND TOTAL	168	589	1887	509	3153	198	581	1791	527	3092

Completions in Oklahoma and Kansas, Week Ended May 8

OKLAHOMA

Caddo County

Company	Well No.	Location	Depth	Initial Prod.
English	3	NWc SE SE 31-6-9W	2148–2365	60
Briscoe-Hall	5	CNL NE NE 6-5-9W	1876–2356	50

Carter County

Magnolia	2	C SE NW SW 34-1-3W	2828–2837	200
Graham	13	CNL SE NW NE 31-2-2W	2262–2970	5
Simpson-Fell	3	C NW SE NE 9-4-2W	T.D.3017	Dry
Humble	1	C NW SW SE 1-4-3E	T.D.2350	Dry

Creek County

Texas	1	SWc SE 13-19-8	2200–2255	25
Interocean et al	2	SEc NE 27-17-8	3162–3168	1040
Southwestern	1	SEc NW NE 27-17-8	3095–3103	615
Phillips	2	NEc SE SE 25-15-7	3206–3262	4M
Skelly	13	NEc NW SE 12-14-8	2360–2301	75
Madden	1	NEc SE SE 36-18-9	2340–2372	30
Wright	3	SEc NW SE 23-17-10	2477–2524	190
Ireland et al	5	SWc SE SE 8-17-11	2488–2497	360
Tibbens	24	NEc SW 30-15-9	3015–3133	550
Aztec	1	NWc 12-17-8	3511	Dry
Kingwood	1	SEc NE NE 30-19-9	T.D.3119	Dry

Garfield County

Sinclair	1	SEc NE 13-22-4W	2497–2516 OWD	187

Garvin County

Texas	12	SEc SW NE 17-1-3W	1635–1647	65

Grady County

Carter	3	SEc SW SE SW 35-3-5W	1474–1499	100
Prairie	1	C NE NE 3-4-8W	T.D.2350	Dry

Jefferson County—Seay

Brown	4	CSL NE NW 33-6-5W	1268–1283	60
Carter	3	CW½ NW NE 33-6-5W	1310–1331	200
Gypsy	20	CEL SW NE 33-6-5W	1263–1275	150

Kay County—S. Braman

Comar	5	NWc SE NE SW 5-28-1W	2318–2350	2253

Kay County

Marland	5	C NE SE NW 12-26-2W	2960–2965	48
Manahan et al	3	SWc NE NE 16-27-1W	T.D.3726 OWD	Dry
W. Phillips-Marland	1	NWc NE 32-28-5E	T.D.3625	Dry

Lincoln County—Davenport

Amerada	4	SEc NE SE 2-14-5	3409–3442	120
Texas	2	SWc SE SE 2-14-5	3371–3449	60
Magnolia	1	NEc SE 10-14-5	3374–3480	112
Shaffer	4	NWc NE NE 10-14-5	3370–3421	80
Shaffer	5	SEc NW SE 10-14-5	3365–3425	30
Skelly	5	NEc SE NE 7-15-6	4067–4071	403

Muskogee County

Gilbertson	2	SEc NW NW 27-14-16	T.D.1717	Dry

Okfuskee County

Darby	1	NEc NW SW 14-13-9	1058–1073	30
Barbara	2	CWL SE NE 3-11-11	2687–2704	5
Prairie	1	NWc NE 35-11-9	3110–3138	31M

Okmulgee County

Smith	7	SEc NW SW 22-13-11	1080–1092	1½M
Rebold	1	SWc 29-13-11	2650–2710 OWD	5M
Vierson et al	1	NWc SW SE 4-12-12	T.D.2610 OWD	Dry
Carter	2	SWc NW NE 18-12-12	T.D.2559	Dry
Page Bros et al	1	NWc SW SW 18-15-13	T.D.2765	Dry
Gardner	2	NWc NE SW 32-14-13	T.D.2800	Dry
Misener	15	CWL NW SW 16-14-14	T.D.1760	Dry

Osage County

Keener	8	SEc SW NE 15-29-10	948–1018	50
Keener	9	CSL SW NE 15-29-10	985–1019	60
Barnsdall	40	NEc SW NE NW 35-29-11	900– 947	60
Simon	6	SWc NE NE NE 36-29-11	979–1006	5
Tuloma	3	CSL SW 25-27-11	995–1035	15
Morton et al	1	NWc 1-26-7	2870–2876	20
Continental et al	2	SWc NE SE 5-23-9	2087–2120	350
Kenyon	12	SE NE NE 5-22-11	1670–1716	25
Mid-Kans	6	SW NE NW 11-21-10	2060–2067	300
Devonian	9	C N½ N½ NW 20-20-12	2086–2109	18
Bird	1	NEc SE 7-25-8E	T.D.2778	Dry
McCarthy	1	SEc NE 29-24-8E	T.D.2675	Dry
Continental	1	C SE NW 12-23-8	T.D.2610	Dry
Moore et al	7	SE SW SW 11-21-9	T.D.2310	Dry
Barnsdall	17	NW SW SE 4-20-12	T.D.2085	Dry

Pawnee County

Watchorn	14	NEc SW 33-23-3	2684–2695	50
Magnolia	9	C SW SW NW 4-22-3	4054–4083	57

Payne County—Ingalls

Roxana	3	SEc SW SW 13-19-4	3729–2728	1842

Payne County—Mehan

Company	Well No.	Location	Depth	Initial Prod.
Deep Rock	3	NEc NW NE 26-18-3	3717–3757	95
Deep Rock	1	NWc SW NE 26-18-3	3750–3788	75

Pontotoc County

Lloyd-Smith	1	NEc NW NE 1-3-6	T.D.1720	Dry

Sequoyah County

Citizens	1	SEc NE 15-11-26	T.D.2650	Dry

Stephens County

Pierce-Brown	1	CEL 13-1-9W	T.D.2514	Dry
Carter	1	NWc NE SE 2-2-5W	1487–1496	13
Magnolia	1	NEc NW SW 32-1-5W	1707–1732	30
Brown	3	NWc NE NE SW 28-1-8W	2255–2267	15

Tulsa County

Holmes et al	1	NEc SW 23-19-10E	1825–1882	417
Selby	8	CWL NW SE 4-16-13	2123–2125	3
Petroleum	13	CSL SW NE 4-16-13	2168–2170	1
Suppees et al	2	CSL SW SW 34-19-12	T.D.2296	Dry
Pataula	1	NEc NW NE 8-17-14	T.D.2280	Dry

Wagoner County

Knox-Shouse	1	SEc NW 3-17-16	T.D. 713	Dry
Carder	1	SWc NW 11-17-16	T.D. 810 OWD	Dry
Rogers et al	1	NEc SE SE 32-16-15	T.D.1457	Dry
Talbott	2	C E½ NW 10-18-16	1160–1167	4M
Severada	3	CNL NW SE 31-6-9	630– 655	10M

KANSAS

Butler County

Empire	32	NEc NW NE SW 29-28-5E	565– 580	20
White Eagle	4	C SE NE SW 27-26-7E	2135–2167	80
Amerada	5	C NW SE NW 27-27-7	2715–2758	250
Federal	5	SWc NE NE 33-27-7	2740–2785	100
Empire	30	C SE NW NW 29-25-5E	T.D. 752	Dry
Tidal	1	C NE NE NE 31-27-7	T.D.3265	Dry

Chautauqua County

Leighty et al	1	C SE SW NE 20-34-9	1440–1483	25

Coffey County

Peerless	1	C N½ S½ SE 25-22-14	T.D.1770	Dry

Cowley County

Hazlett et al	1	NEc NW 28-30-8E	T.D.3140	Dry
Roth-Faurot	1	C NW NW 15-32-5	T.D. 762	Dry
Roxana	1	NEc NW SW 18-35-3	2010–2015	3½M

Elk County

Roth	14	C SE SE SW 12-29-8	1958–1988	35
Pure	6	C NE SW NW 13-31-10	1330–1342	40
Theta	1	C NW NW NW 26-31-10	1630–1639	25
Manhattan	1	C E½ NW NW 11-30-11	T.D.1822	Dry
Benge-Wilson	1	C SW SW NW 21-31-10	T.D.1640	Dry

Greenwood County

Mid-Cont	9	C NE SE SW 18-22-11E	T.D.2324	Dry
Lamar-Hayne	1	C NE SE SW 3-22-12	T.D.1847	Dry
White Eagle	1	C NW NW NE 4-23-11	T.D.1950	Dry
Lewis	2	C SE NW NE 9-25-9	T.D.2180	Dry
Sinclair	38	SEc NW SE 19-22-10	2295–2355	150
Titus et al	3	CWL NW 29-22-10	2431–2510	400
Titus et al	14	SE NE SW NW 29-22-10	2351–2405	300
Empire	8	C SW NE NW 14-22-11	1849–1894	150
Empire	6	C SW SE NE 15-22-11	1854–1894	27
Mid-Cont	8	NW NE NW SW 18-22-11	2083–2109	45
York State	2	C SW SE NW 32-22-11	1955–2020	300
York State	3	C SE NW NW 32-22-11	1940–2005	200
Fisher et al	2	C SE NW NW 4-22-12	1869–1917	200
Simmons et al	5	C NW SE NW 4-22-12	1827–1923	250
Braden et al	5	NWc NE NE 27-22-13	1821–1858	18
Manhattan	22	SEc 10-23-9	2293–2326	75
Manhattan	10	C NE SW NW 25-23-8	2504–2521	40
Mid-Cont	2	NWc NE NE 28-23-13	1709–1715	12
Roth et al	10	NEc SW NE 1-24-9	2307–2357	20
Roxana	7	SEc NE NW 34-23-9	2228–2303	90

Lyon County

Sheedy et al	1	C NW NW SE 19-21-10	2185–2199	25
Sheedy et al	5	C NW SE SW 31-21-10	2227–2272	100
Phillips	9	C SE SE SW 33-21-12	1832–1883	100
Abel et al	1	C NW SW SW 22-18-12	T.D.2010	Dry
Balliere et al	1	C SE SE NE 33-19-13	T.D.1754	Dry
Buck et al	1	C SW SW SW 5-30-10	T.D.2474	Dry
Phillips	1	C SW SW NW 29-21-13	T.D.1990	Dry

Marion County

Sheedy et al	1	C NE NE NW 24-21-4	2361–2364	400

Sumner County

Marland	2	NEc NW NE 24-33-2	T.D.3292	Dry

Woodson County

Pure	14	SWc NE SW SE 32-23-14	1668–1691	30

The F. J. Searight No. 1 Davis, an important wildcat in the SEc NE SE of 33-10-6, which has been watched with much interest lately, has been drilled to total depth of 4142 feet after topping the Hunton lime at 4114 feet and reporting a total depth of 4119 feet last week. The 23-foot deepening accomplished this week apparently did not increase the well's output, as it made 270 barrels the last 24 hours, as compared with 280 barrels a week ago when it was only five feet in. For the past four days, it has averaged about its present figure.

Grant County Wildcat Salt Water

THE Grant county wildcat of the Marland Oil Co. its No. 1 Webb, in the C NW NE NE of 2-27-3W, which started off auspiciously at 20 barrels an hour two weeks ago, was drilled two feet deeper during the week, its new total depth being 4357 feet, and started flowing all salt water. This well was reported last week as having declined to 170 barrels a day with about 10 per cent water. It will be plugged back and may yet make a well.

In the Braman townsite field, otherwise known as South Braman, Comar Oil Co. No. 3 Bechtel, first Wilcox sand well in the pool, in the NWc SW SE SW of 5-28-1W, has been drilled to total

(Continued on page 40)

Completions in North Louisiana and Arkansas, Week Ended May 6

LOUISIANA

Urania

Company	Well	Location	Depth	Yield
Ayers Brothers	Urania No. 3	13–10–1E	1570	40
B. & B. Drilling Co	Urania No. 2	7–10–2E	1561	200
Beckman et al	Urania No. 6	25–10–1E	1534	45
O. W. Clark, trustee	Tullos No. 3	23–10–1E	1506	30
H. L. Hunt	Tullos Heirs No. 8	26–10–1E	1496	500
Keister, trustee	Russell No. 1	25–10–1E	1542	35
Keen & Woolf	Urania No. 3	19–10–2E	1544	30
Natural Gas & Fuel Co.	H. Tullos No. 7	26–10–1E	1489	125
Roberts et al	Russell No. 5	25–10–1E	1543	200
Sherman et al	Russell No. 2	25–10–1E	1550	1500
Yeary & Bristol	Urania No. 1	8–10–2E	1515	100

Cotton Valley—Webster Parish

Magnolia Pet. Co	Tiner No. 1	21–21–10	2545	125
Ohio Oil Co	Bodcaw No. 37	21–21–10	2577	100

Caddo Parish—Caddo District

Gulf Refining Co	Levee Board U-4	16–20–16	2289	80
Gulf Refining Co	Levee Board U-5	9–20–16	2265	90

Bellevue—Bossier Parish

Gulf Refining Co	Bliss et A-15	15–19–11	427	10
Gulf Refining Co	Bliss et al A-16	15–19–11	415	10
Gulf Refining Co	Bliss et al A-18	15–19–11	420	10

Caddo Parish—Howard District

Texas Oil Co	Ellerre No. 1	21–15–12	830	5m. gas

Ouachita Parish

Palmer Corporation	Kate Cole No. 2	26–20–4E	2174	10m. gas
United Carbon Co	Wilson No. 1	24–20–4E	2184	10m. gas

TEXAS

Waskom—Harrison County

Company	Well	Location	Depth	Yield
Tomason et al	Mitchell No.1 Jos. Lipscomb HRS		980	5m. gas

ARKANSAS

Nevada County

Humble O. & R. Co	Groves B-1	1–14–21	1140	200
Keystone Petroleum Co.	Waters No. 9	11–14–21	1223	80

Stephens

Magnolia Pet. Co	Maggie Watson No. 1	31–15–19	2205	20

Smackover

Simms Oil Co	Hildebrand No. 10	28–15–15	2640	150
Sunny Jim Oil Co	Hicks No. 2	27–15–16	2280	35
Eason et al	Palmer No. 3	9–16–15	2650	5m. gas
Hollyfield et al	Murphy No. 2	9–16–15	2670	7m. gas and 20
Imperial O. & G. Co	McClannahan 7-A	6–16–15	2555	85
W. R. Keever	Murphy No. 6	8–16–15	2475	75
Magna Production Co	Tatum 3-A	7–16–15	2564	75
Pure Oil Co	Friend No. 9	6–16–15	2565	125
Magna Production Co	Lecroy No. 3	17–16–15	2650	s. w.

Lisbon

Atlantic O. P. Co	Andress B-2	16–17–16	2130	40
Atlantic O. P. Co	Graham No. 1	16–17–16	2115	15
Atlantic O. P. Co	Slaughter No. 6	16–17–16	2108	500
Imperial O. & G. Co	Primm No. 1	21–17–16	2162	30
Lion O. & R. Co	Goodwin No. 3	16–17–16	2125	40
Miller & Cottingham	Slaughter No. 4	9–17–16	2140	200
Pure Oil Co	Slaughter No. 1	4–17–16	2142	300
Wingfield et al	Dumas A-5	9–17–16	2120	400
Wingfield et al	Slaughter No. 4	9–17–16	2115	400

Completions in North and Central Texas, Week Ended May 8

Archer County

Company	Well Farm	Location Survey	Depth	Initial Prod.
Barclay-Moore	1-Brown	ATNC	1292–1296	75
Cosden-Consol	1-Oldham	Hubble	1371–1390	5
Atlantic	3-Oldham	Hubble	1305–1308	60
Texas	1-Wright	TEL	1388–1400	20
Hammond-Hines	1-Richardson	SAR	1390–1403	18
Cook-Reeder	3-Jeske	McCory	1175–1180	6
Atlantic	1-Rocking	BBB&C	1157–1166	100
Atlantic	2-Roching	BBB&C	1159–1178	90
Robertson et al	1-Howley	SP	T.D.1836	Dry
Young	1-Abney	SP	T.D.1811	Dry
Sarsfield et al	1-Sloop	N&TC	T.D.1200	Dry
Maer-Stanforth	1-Preston	M&W	T.D.2002	Dry
Rowe	1-Hutchinson	ATNC	T.D.1470	Dry
Texas	1-Dycus	Harris	T.D.1522	Dry
Consolidated	1-Richardson	Harris	T.D.1420	Dry
Cosden-Consol	6-Oldham	Hubble	T.D.1402	Dry
Cosden-Consol	4-Oldham	Hubble	T.D.1382	Dry
Texas Consol	3-Wolfe	SP	T.D.1351	Dry
Maer-Stanforth	2-McCarty	Chisholm	T.D.1425	Dry
Carter	2-Cowen	Jefferson	T.D.1063	Dry
Gwynne et al	1-Echols	TEL	T.D.1332	Dry
Gulf	2-Ward	BBB&C	T.D.4023	Dry

Baylor County

Pandem	1-Sycora	Loggins	T.D.1470	Dry

Brown County

Mulloy et al	1-Newton	Harris	T.D.1262	Dry
Humble	9-Dunn	Delgado	T.D.1115	Dry
Halmack	1-Algood	Brewster	T.D.1312	Dry
Smith	4-Dunn	Delgado	T.D.1170	Dry
Kitchell et al	1-Carson	Wilson	T.D.2415	Dry
Barclay et al	7-Dunn	Delgado	1114–1133	125
McCarter et al	2-Allen	Delgado	1102–1127	100
McCarter et al	4-Allen	Delgado	1106–1126	200
Cosden	9-Westerman	Mitchell	1277–1295	210
Gillman-McMurray	4-Thompson	Smith	1231–1237	75
Smith	3-Dunn	Delgado	1128–1131	10
Texas	6-Dunn	Delgado	1120–1138	400
Texas	7-Dunn	Delgado	1137–1154	150
Texas	8-Dunn	Delgado	1122–1132	180
Gillespie	3-Newton	Swain	1172–1189	141
Cosden	1-Williams	May	1150–1158	35

Callahan County

Canyon	1-Derrington		1402–1413	200
Goldrick et al	1-Conley	Simms	2830–2851	4
French-Lieis	1-Foster	Burnley	T.D.1503	Dry

Carson County—Panhandle

Amarillo	3-Bivens	CB&C	3072–3100	6,16M

Coleman County

Independent	1-Dibrell	Hicks	1888–1904	409
Evans-Wakefield	1-Walker	Dulaney	T.D.2010	Dry
O'Connor-Ross	1-Hagood	Lopez	T.D.1405	Dry
Gillespie	1-Whitfield	Coleman	T.D.2319	Dry

Gray County—Panhandle

Empire	1-Heathholt	I&GN	3214–3258	15

Hutchinson County—Panhandle

Dunnigan et al	1-Whittenburg	K&C	2938–3014	1000
Roxana	1-Smith	M&C	2890–2973	877
Phillips	3-Wright	M&C	2814–2862	240

Limestone County

Company	Well Farm	Location Survey	Depth	Initial Prod.
Sweeney et al	1-Wright	McNulty	1276–1281	50
Magnolia	8-Desenberg	Varela	T.D.2958	35

Mitchell County

Eastland	1-Adams	TP	2820–3096	80
Magnolia	3-Adams	TP	2940–3054	130

Montague County

Flemming et al	3-Hinds	Wall	900– 932	100

Palo Pinto County

Moore-Sunebold	2-Slemmons	TO	3375–3395	170
Pender	3-Slemmons	TO	T.D.3600	Dry
Hart	1-McDonald	TP	T.D.1397	Dry
Morris et al	1-McDonald	TP	T.D.1295	Dry

Pecos County

Trans Pecos	2-Downs	Sec 592	T.D.1100	Dry

Reagan County

Big Lake	63-Univ.	Univ.	2843–2939	1250

Shackleford County

Roeser-Pendleton	1-Cook	ETRR	1220–1235	1407
Roeser-Pendleton	3-Cook	ETRR	T.D.1550	Dry

Stephens County

Atkinson et al	1-Keathley	TEL	T.D.3545	Dry
Pender	1-Elder	TEL	T.D.3735	Dry
Price-Russell	3-Brucel	TP	2020–2116	50
Tidal et al	1-Bradford	TP	T.D.3780	.2M

Throckmorton County

Humble	1-Ledbetter	Riddle	775– 778	28
Humble	1-Stephens	Colorado	T.D.2175	Dry

Upton County

Morris et al	1-Halff	Phillips	T.D.3530	Dry

Wichita County

Parsons-Rankin	1-Payton	ME&P	T.D.2154	Dry
Bridwell-Heydrick	3-Waggoner	George	T.D.1562	Dry
Humble	1-Waggoner	GH&H	T.D.200	Dry
Gilliland	1-Chilsen	Denton	T.D.1820	Dry
Pet. Prod	1-Dutton	Denton	T.D.1817	Dry
Gulf	3-Waggoner	Wills	590– 594	8

Wilbarger County

Humble	5-Waggoner	H&TC	1881–1919	400
Phillips	5-Waggoner	H&TC	2582–2587	50
Humble	4-Waggoner	H&TC	1880–1907	270
Milham	2-Waggoner	H&TC	1919–1924	90
Milham	6-Waggoner	H&TC	1884–1898	455

Young County

Atlantic et al	1-Roching	BBB&C	1157–1166	100
Atlantic et al	2-Roching	BBB&C	1163–1179	100
Bridwell-Heydrick	2-Beardon	Payne	1045–1062	25
Booth et al	2-Graham	TEL	1102–1106	30
Howard	1-Stewart	Young	551– 558	70
Gulf	1-Edwards	TEL	T.D.1212	Dry
Cook-Reeder	1-Mathews	Rohus	T.D.1150	Dry
McElreath et al	1-Cox	Young	T.D. 560	Dry
Plains	2-Farrow	TEL	T.D.1045	Dry

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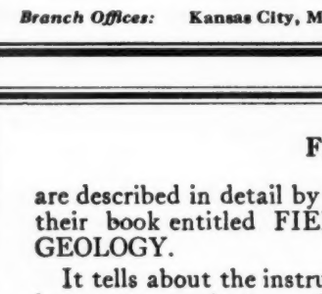

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(Continued from page 36)

depth of 3484 feet, and made 1530 barrels in the past 24 hours, with water and b.s. showing to the extent of about 1 per cent. Immediately preceding the first appearance of water in this well, its production dropped from 2453 to 1845 barrels and then to the figure given above.

In this field, Comar No. 2 Lawrence is producing from the Stalnaker sand, which was topped at 2355 feet, with oil pay at 2378 feet and total depth 2382 feet. This well, which is located in the SEc NW of 5-28-1W, started off at the rate of 132 barrels of 42.5 gravity oil an hour, and made 3015 barrels during the past 24 hours.

I.T.I.O. Well Quits Flowing

THE Indiana Territory Illuminating Oil Co. No. 1 Dyer, in the NWc SE of 24-9-6, Seminole county, which has been making about 1000 barrels a day for about two months, suddenly stopped flowing during the past week. At last reports, it was on the swab and making 495 barrels daily. It will be plugged back two feet and given a small shot in an effort to bring it back. This well's total depth is 4012 feet, being six feet in the sand topped at 4006 feet.

In the Ingalls pool, Payne county, where a number of big wells have recently been completed in the Wilcox sand, and where the Prairie Oil & Gas Co. bought out the properties of the Olean Petroleum Co. some time ago, the Magnolia Petroleum Co. No. 2 Pleasants has 3200 feet of oil in the hole, but is not making enough gas to flow the oil. This well, which is located in the NWc SW NW of 24-19-4, topped the sand at 3810 feet, had only two feet of it and went into hard lime. At total depth of 3826 feet it was again in sand and was swabbing at the rate of 30 barrels a day. The company's No. 3 on this lease is cementing the 8-inch pipe at 3460 feet and No. 4 is doing the same thing at 3350 feet. Both will be standardized before drilling in.

Oil Show In Grady County

IN Grady county, southwest of Oklahoma City, Carter Oil Co. is reported to have had a showing of oil in its No. 1 Gardenhire, in the SEc SW SW of 5-3N-5W, in a sand from 3846 to 3860 feet. The sand was drilled into with a hole full of water and the importance of the showing cannot be estimated. They plan to lower the 5-$\frac{3}{16}$-inch casing to shut off water and will make a test. This is an old well drilled deeper, having been completed last December for a 25-barrel pumper in sand from 2782 to 2790 feet.

HOUSTON.—Leslie McKay, who was transferred from the Luling district, is now resident representative at Laredo of the oil and gas division of the Texas Railroad Commission, which administers the conservation law of the state. His office is in the Laredo Chamber of Commerce.

Field Tests Are Under Way At Bradford on Adding Soda Ash To Flood Water

N. P. N. Staff Photo.

Harry M. Ryder, physicist for the Petroleum Reclamation Co., at left and Farm Foreman Walker. Well in picture is equipped to take soda ash solution. Mr. Ryder is directing the experiment for the company.

By Lawrence E. Smith
N. P. N. Staff Writer

BRADFORD, PA.

INTO a tank half filled with heated water the young man dumped three sacks of white, finely-powdered substance, and mixed it all thoroughly by blowing compressed air through it from the bottom of the tank. The mixture became whitish in color—rather milky. He then filled up the tank to the top with water, bubbling the air through it all the while. When the tank was full he cut off the air and walked down the hill to a well. Here he turned a stop in the line which led from his tank to the well head and the flow of the tank's contents began.

After a period of measuring the rate at which the well was taking the liquid, he announced that the show was ended until he could mix another batch. Well No. B-1 had had its daily "tonic."

Maybe this is the beginning, here in Bradford, of a new method of increasing the recovery of oil. Again, maybe it isn't. It is important, though, that the method is being tried—it is important when any method designed to get greater recovery is tried. In the Bradford field a number of practices have had their beginning and if this is successful, another will be added to the list.

It was on July 2, 1925, that the U. S. Geological Survey issued a press notice on the laboratory work that had been done by Dr. P. G. Nutting, a physicist then recently become a member of the Survey. It was at that time recommended that a field test be made of one or more of several substances, such as washing soda, soda ash or water glass, although the latter was given lower rating than the other two. Addition of these to the water used in flooding the oil sands in this field would, it was believed by the Survey, aid in freeing a greater quantity of oil from the sand grains.

Operators in this district have for a considerable time been reaching out for scientific assistance in meeting a problem of considerable magnitude. The problem is: How shall they get the maximum recovery of oil from the sand? It might be urged that the same problem exists elsewhere, but there is this notable difference that the Bradford operators, having let in the water, feel a little apprehensive because there might be a more efficient way of doing it. True, flooding generally yields a profit to the operator and in some cases has yielded large profits, but what of that oil that is left behind? Core tests have shown that the flood does not get it all. And, with the sand once filled with water, is there any way to get any more oil out?

The Geological Survey has been giving the operators of the district all the assistance it could, as it early recognized that here was a problem of large economic import. Studies were made by A. F. Melcher, now of the Marland Oil Corp., of pore space in the Bradford sand. Dr. Nutting, who succeeded Melcher, struck out on an independent line and began to work with solutions to increase recovery. He applied for patent on the principle of using such solutions in order that it might be used freely by any operator, patent being in the name of the government.

Latterly, the Survey stationed Paul Torrey, a geologist, in the field to observe the methods of applying chemical, to watch for results and to study other phases of the water-drive method. Mr. Torrey is in Bradford at this time.

Outstanding Experiment

FRESH water has been proven to be ideal for flushing oil from sands up to the point where the water becomes "foul" from contact with the oil. When this occurs the effectiveness of the water is much lessened. To prevent such contamination and to preserve the force of the flood water, the U. S. Geological Survey recommends the addition of soda ash, washing soda, or water glass to the flood waters.

Several operators are now making field tests of what has been demonstrated in the laboratory. The work is too new to expect any results but conducted on the scale it is, it is one of the outstanding oil field experiments of today.

Experiments Under Way

SINCE it was originally recommended by the survey that something be used to supplement the water drive, six operators have made field experiments in one form or another. One of these was abandoned. Five are still under way. Of these, three are confined to one or two wells each and two are being conducted on a larger scale. The five operators are treating a total of 21 wells.

The experiment which was abandoned after what the operators considered a fair trial was conducted by the Forest Oil Corp. in the Richburg, N. Y., field.

W. C. Purple, the Minard Run Oil Co. and William Piper are at this time experimenting with one and two wells each, while a more comprehensve program has been adopted by the Kendall Refining Co. and by the Petroleum Reclamation Co.

Photographs accompanying this article were taken at the "soda plant" of the Petroleum Reclamation Co. on a property south and a little east of Bradford and a little more than a mile from the center of the city to the place where you leave your car. The visitor to the scene of the experiment climbs—and he walks to do it, for not even the hardy flivver makes it to the top—some 800

N. P. N. Staff Photo.

Soda ash plant of the Petroleum Reclamation Co. south of B-adford. Small "lean-to" at the end houses the mixing tank and the main building is warehouse for the ash. Large tank in background is storage for water piped to the top of the hill to flood two water drive wells that failed to find supply of ground water.

feet in a half mile in getting there. Across a ridge the company has located 10 wells in a north-south direction to be used as intake wells in a straight line flood. It is in these holes that soda ash is being introduced ahead of any water drive—with the exception of two wells which have been taking water for some time.

Top of Ridge Dry

FLOOD water in this field is found about 300 feet below surface and is merely ground water collected in a suitable bed. The water vein follows topography, so that the supply is found at about the same distance below surface, regardless of elevation. On the top of the ridge on the Petroleum Reclamation property, two intake wells failed to develop a supply of water for flooding. The ridge is an outlier of the Olean Conglomerate and the outcrop of this formation, almost on the top of the ridge, is formed into a collection of imposing blocks, known to picnickers as "the rocks." Disappearing under the surface a little farther east, this formation, which is characterized by extremely large pebbles, takes up what would be the ground water. Not being a good reservoir, it permits the water to get away rapidly, hence two of the intake wells found the Olean Conglomerate had spoiled their flood water supply. Water has since been piped from a spring at lower level to tank on the very peak of the ridge and the intake wells will thus be supplied.

Plans Thoroughly Outlined

SCHEDULE was laid out by the Petroleum Reclamation to cover the entire experiment on 10 intake wells. One of the first tasks undertaken by H. M. Ryder, when he joined this company as a physicist was the planning of a program of treating wells. He is directing the work—and doing a large share of it himself. In fact, out on the lease, some of the boys think a physicist is a man who walks around with a Stillson wrench in his hand all the time.

Thirty-five and one-half tons of sodium carbonate (Na_2CO_3) or soda ash, were purchased for the treating of the 10 wells and stored in a portable steel building, which later will serve to house a pumping power. Mixing tank is located in one end. The tank is wood, 16 barrels capacity, and of the type used as flow tank on the lease. Platform of planks crosses the center of the tank, forming walk-way for the man who is mixing the solution.

The tank is filled about half-way with water and is warmed to about 95° F. In the building is a 1½ horse power boiler and in the bottom of the tank is a cross made of three-quarter inch pipe, perforated with one-eighth inch holes one inch apart. Through the cross either steam or compressed air is introduced into the tank.

With the water heated to the desired temperature, 600 pounds of the soda ash are added and as the soda is dumped in from sacks the mixture is started bubbling with air. The steam has at this stage been cut off. The tank is filled with water and this makes a solution of about 40 pounds of ash to one barrel of water. The process of adding the ash raises the heat of the solution to about 113° F. and the filling up of the tank with cold water, when the ash had been added, causes it to fall to about 86° F. It is ready to be turned into the well.

Two-inch line pipe runs from bottom of the tank to the wells being treated and it is merely a matter of turning the right stops to flow the solution into the well. The mixing plant is located at the very top of the ridge, so there is gravity flow to each intake well.

Four of the wells are equipped with MacGregor seats with open couplings about 400 feet below the surface and these are piped with 1-inch, pony packers being set above the seat. The others take their solution through 2-inch pipe.

How Will Solution Perform?

WHAT will be the form of proof of the success of experiments in adding chemical to water for flooding the Bradford sand? Some believe it will result in daily well averages much greater than are produced by ordinary flooding. Others believe the effect of a more complete flushing of the sand of its oil contents, if such takes place, will be the building up of a much greater oil bank in front of the flood water with consequent slowing up of the flood and that the effect on production will be greatly to lengthen the productive life of a flood well rather than to cause it to take a spurt in production.

Detailed Records Kept

THE tests are being conducted in a most exact manner, so that in case it proves to be beneficial the company will know just what methods were pursued each day. The rate at which the solution enters the sand is noted by dropping a float in the tubing and timing the descent on the liquid column. Dyes were introduced with the first solution so that observations may be made on the oil wells to see whether the soda is coming through the sand. All the data is recorded and a complete history of the experiment will be available to the company.

The row of wells being treated is to serve as the first pressure line in an application of the now familiar straight line flooding. The oil wells which will benefit from the water drive are yet to be drilled. They will be located equidistant on each side from the intake wells, staggered with respect to the lat-

ter. It is customary in floods of this type to permit the intake wells to receive water for upward of a year before drilling the oil wells, in order that the flood may be well on its way to the oil wells and immediate benefits in the form of a high rate of production may be had as soon as the oil wells are completed.

The 10 intake wells on the Petroleum Reclamation property are known as the "B" wells. They are spaced 200 feet apart. By the time this article appears, all 10 wells will have had some treatment. The "dosage" is administered every day including Sunday, once the treatment is started, until the well has had the amount set up in the outline of procedure agreed upon before the work started. Four wells were to get five tons each; four were to get three tons each and two were to get one and three-quarters tons each of the soda ash, made up in the previously mentioned solution.

Work Recently Begun

TWO wells being treated had been taking water for some months before the soda was introduced. One had been pumped as an oil well. Two were dry, i. e., had no water supply and the others are recent completions for intake wells. The first soda was put in late in April.

It will be the attempt on this row of wells to have the flood move rather slowly and to this end a water meter and valve will be used to measure and regulate the intakes. It is the opinion of the Survey men who have worked on the subject that best results will be obtained by a moderate travel of the water as in that way a more continuous oil "front" will be maintained through the sand.

This is no hurry-up affair and it will be only when the first two rows of oil wells drilled, one on each side of the row of flood wells, have watered-out that it will be possible to establish whether recoveries are increased through use of the solution. Probably three years from now, the Petroleum Reclamation Co. will be in position to say whether the experiment which looks so promising in a laboratory has succeeded in field practice.

In round figures, the cost of making this experiment is about $1,500, not counting the work that would be done anyway in regular process of flooding the territory nor certain equipment that will be used elsewhere in company operations.

Kendall Treats Wells

ANOTHER field test on a sizable scale is that of the Kendall Refining Co. This company began last September 26, not so long after Dr. Nutting had revealed the results of his experiments and had made his recommendations. The company can, as yet, trace no results from the use of solution.

The "soda" wells of the Kendall are on two properties, one near Bells Camp and the other near Red Rock, both east of Bradford and beyond Derrick City. On both properties the company has arranged the treated wells to drive along with or near an ordinary water flood so that results could be compared.

In the first well the company started treating, washing or sal soda was used. This is the chemical used by some laundries to make certain that your shirt will not survive two washings. It dissolves readily in cold water, but is more expensive than soda ash and no more effective, according to Dr. Nutting, (Soda ash requires hot water and agitation to dissolve.)

In all others than the first, the Kendal has used soda ash in the wells. In one of them they have put 200 barrels of solution and in the others 100 barrels each. The solution they use averages about 65 pounds of soda to a barrel of water.

No Results Observable

WELLS around the intake well in which they put the first solution have not shown anything unusual—they are normal flood wells. They have not produced much water and analyses made by the company's chemists have failed to show any soda coming through.

The Kendall has not built an elaborate plant, such as has the Petroleum Reclamation, chiefly because its experiment is not confined to one locality. They mix the soda and water in a tank similar to the manner employed by the Petroleum Reclamation and after allowing the solution to cool to about 60 or 70° F., they haul it to the wells in barrels.

One operator believes he can see results from his application of soda ash solution. W. C. Purple, who is the chief operating executive of the Pressure Oil Co., treated two wells on a property between Red Rock and the

N. P. N. Staff Photo.

Two-inch outlet lines from the mixing tank to the wells being treated. Smaller lines are gas and compressed air lines for heating tank and agitating solution. This is at plant of Petroleum Reclamation Co.

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Saturated Solution of Soda Ash at Various Temperatures

(Data Supplied by Solvay Process Co.)

Temp. F.	Lbs. Soda ash per 100 lbs. solution	Sp. Gr. Corrected for temperature	Lbs. Soda Ash per Gallon of solution	Lbs. Soda Ash per bbl. (42 gallons)	Gallons of Solution from one gallon of water
32	6.6	1.064	.585	24.57	1.075
41	8.7	1.098	.796	33.43	1.09
50	11.2	1.126	1.051	44.13	1.13
59	14.2	1.152	1.363	56.25	1.16
68	17.7	1.194	1.761	73.96	1.21
77	22.0	1.239	2.272	95.40	1.28
86	27.4	1.302	2.973	124.86	1.38
90.5	31.6	.....	.....	.....	1.46

state line. Unexpectedly, production of an old natural well, located about 80 feet away and in such position as apparently to be getting only a one-way "push" from the flood, increased to six to eight barrels daily. This is unusual production in that district, Mr. Purple says. Production has been holding at that figure for several weeks. The well is also making considerable water, which is accounted for by the fact that he had let the water into his intake wells some time prior to adding the soda. As yet the water coming in with the oil has not shown soda content.

William T. Piper, who has been highly successful at water flooding, experimented with one well with no noticeable result.

E. E. Bryner, general manager of the Minard Run Oil Co., one of the Emery companies, put in a large quantity of a potassium carbonate solution in one well. This material is much more expensive than any of the others mentioned, but was available in the stocks of a chemical plant formerly operated by the Emery interests and now being dismantled. No gain in production or other change has followed this experiment.

The Forest Oil Co. stopped last August an experiment in the use of sodium silicate (water glass). A solution of this was put into an intake well and there was such a falling off of the rate at which the well took water that the experiment was discontinued.

In both the Kendall and the Petroleum Reclamation experiments, there has been no plugging action in the intake wells which are absorbing the solution and water freely. It is believed by Survey chemists that the ground water of the Bradford district which is used for flooding contains nothing that would react with the introduced solution to injure the wells or to prevent the filtration of water through the sand. The ground water contains about 200 parts of dissolved salts to the million. The soda ash in water forms a true solution, i. e., it will not settle out and result in a deposition on the sand.

The Originator's View

THE theory held by Dr. Nutting on the way the sodium carbonate solution should work is interesting. An exposition of his views is found in the October, 1925, issue of Industrial and Engineering Chemistry, official publication of the American Chemical Society. Some excerpts are:

"Clean sand in one arm of a U-tube if saturated with oil, may be freed from oil rapidly and completely by water displacement provided the water be fresh. If, however, the water used has been a week or two in contact with oil it will give a slow, ragged drive, and if forced through will leave much oil behind it in the sand . . . . . Although fresh oil and water are more or less of the cat-and-dog order, after a few days in contact each becomes saturated with the other—about 0.02 per cent of each is soluble in the other—and they become quite friendly. This observation is of vital importance in the water-drive problem. . . . . If a layer of oil is placed on water in a test tube or bottle and a pinch of clean sand is dropped in, it will penetrate the oil and cling to the under side of the oil coating. As soon as the silica touches the water, it develops an affinity for oil amounting to the weight of roughly a million molecules per molecule surface. The practical problem of the water drive is, then, to find a fluid or solution in which silica grains will lose this affinity for oil. For obviously, if the sand will release its hold on the oil, the oil may be readily driven along away from each sand grain. Given such a medium, it is only a question of keeping up the supply with sufficient head to maintain it. The medium, of course, must not react with the oil and hence become used up and must not clog the pores of the oil sand. . . . . Many (such) substances . . . . . will weaken the hold of the sand on the oil. But the stronger acids and bases react more or less with the oil; some appear to have a curdling effect. Detergents such as soap form a solid substance which tends to clog the pores. All these substances will be used up and for that reason alone would be unsuitable for water driving in the field, since the oil-water contact face cannot be reached after the start except by diffusion. Weak organic acids such as tannic and acetic might be used, but they are quite expensive. The affinity of sand grains for hydrocarbons is completely destroyed by the use of a salt of a strong base and a weak acid, in particular the carbonates, bicarbonates, borates, silicates, acetates, etc. . . . . Sodium carbonate is particularly effective, is extremely soluble and is inexpensive."

Then, in a brief outline of procedure recommended for the Bradford field, Dr. Nutting recently said:

"The soda solution works by getting between the oil and sand grains.

"The forces are chemical, very powerful but slow and cannot be hurried.

"The aim is to produce a wall of soda solution at least a foot thick advancing against the oil.

"The soda solution sweeps before it all oil and gas if not hurried by too great pressures.

"Soda can not harm the oil wells and does not affect the oil. It loosens paraffin and breaks up B. S."

It is also the theory of capable reasoners on this subject that if the soda drive works as its proponents believe it will, much less oil will be "pocketed" by the water drive, that it might even pick up oil in watered-out territory in quantities great enough to justify going after it.

There is no peculiarity in the behavior of the intake wells that are being treated with soda ash that would indicate that damage is being done. There is also, except in Mr. Purple's case, no indication that it is doing any good and it stands at present merely in the light of one of the most interesting experiments that has ever been conducted along the line of increasing recovery. If successful, variations of the practice will no doubt be possible in many fields besides Bradford.

Texas Pacific Wins Out In Ranger Litigation

Staff Special

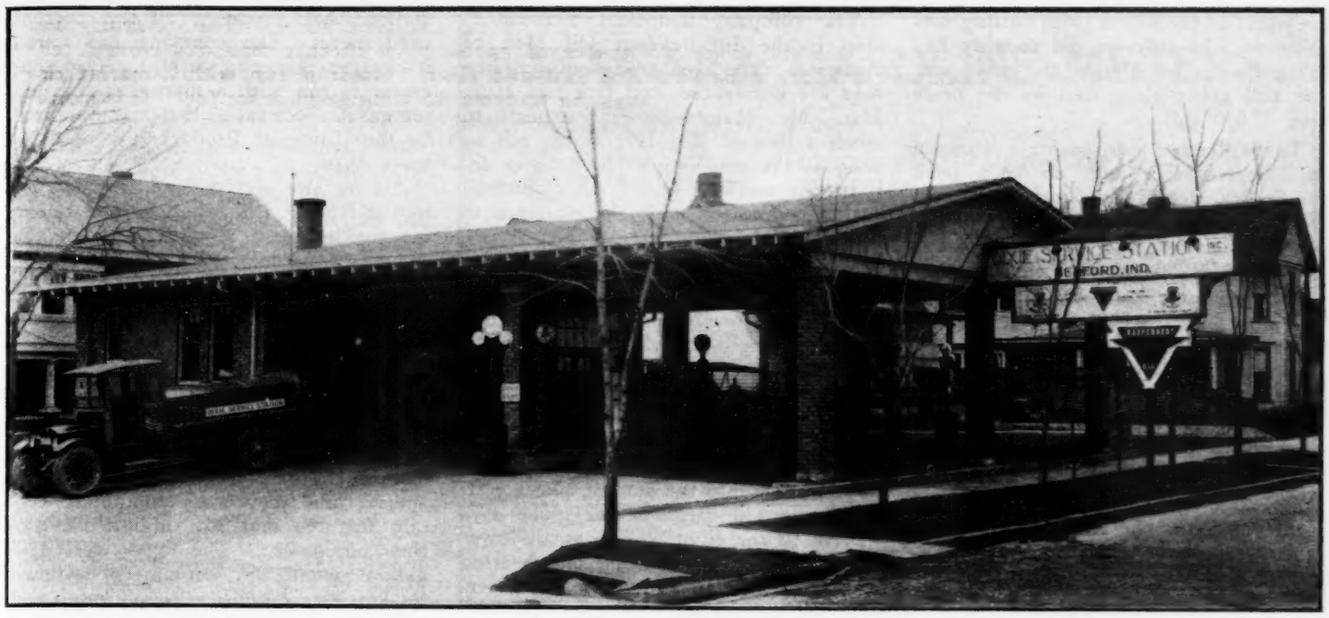
HOUSTON, May 8.—Federal Judge Wilson in the northern district of Texas has approved the master's report denying recovery to the Vulcan Oil Co., and affirming judgment for the Texas Pacific Coal & Oil Co., in litigation involving properties in the Ranger territory since 1920.

In September 1920, the Texas Pacific Coal & Oil Co. filed suit against the Vulcan for $425,000 balance on the sale price of a one half interest in sixteen leases in Eastland and Stephens counties. The Vulcan then filed an answer and cross action against the Texas Pacific, seeking to cancel the contract and to recover $3,000,000, this amount being the purchase price of the leases plus the amount expended in development.

The basis of the cross action was alleged bad titles, expressed and constructive fraud, etc.

A receiver was appointed for the properties in question at the Vulcan's instance. Preston Martin of Weatherford was named receiver.

The case was referred to Henry Jackson of San Angelo, special master, who reported on fact findings and all legal questions in favor of the Texas Pacific. The federal court judgment more recently entered approves the master's report.



This station of the Dixie Service Station, Inc., in Bedford, Ind., stuck to its prices and weathered a price fight started over Q. D. A. contracts without losing business

Held His Prices and Picked Up Trade While Other Concerns Cut the Market

By Ward K. Halbert
N. P. N. Staff Writer

BEDFORD, IND. May 8

"THE first thing a customer does when he learns about a cut price is to wonder if the goods are all right. That doubt as to the quality of the product is always present in the mind of a man who buys something cheap. When a dealer cuts his gasoline price for no other reason than to get business, his customer is almost sure to think one of two things: either the dealer has cheapened his product or has been selling it for more than it was worth for a long time. One of the greatest assurances of a constantly uniform product is a constantly uniform price."

The foregoing paragraph is a quotation from Lloyd A. Malott, who operates the Dixie Service Station in Bedford, Ind. He is the son of Charles G. Malott who started the business about four years ago and is now on a tour of Europe. His remarks carry some weight, for it was the Dixie Service Station that weathered the Indiana price war without making a reduction. What is more surprising still, it picked up gallonage all the time.

The Malotts are small marketers. They do not dominate the gasoline situation in Bedford, a town of 16,000 with eight oil companies, all operating one or more stations. There is plenty of competition, even for this prosperous little town which is headquarters of the Indiana oolitic limestone industry, surrounded by quarries and peopled with stone mill folk who are workmen of high earning ability. There is about one filling station per 1000 of population.

Young Malott is a trained electrical engineer. His father was a telegraph operator, and like most railroaders had to be forced to quit the business before he gave it up. He was obliged to quit "jerking lightning" when the railroad ruled that even its telegraphers could not be color blind. So he started selling automobiles and finally concentrated on oil marketing.

Bedford's Price War

THE price war in Bedford which started about a year ago was not a part of the one which wrought such havoc south of Fort Wayne. Some dealers in town started bidding for the patronage of the most desirable customers, at cut prices. The bus business was in great demand. It was a service station account, but the fills were always large and the total gallonage considerable.

The general understanding was that it took a discount of 2 cents a gallon to hold the bus patronage. This was the situation when the Standard Oil Co. introduced its quantity discount agreement in Bedford in July, 1925.

In a week a great many business men in town were impressed with the idea that large purchases should be accompanied by lower prices, in the gasoline business as in others. But the givers of concessions (whether pumps and tanks, secret cash rebates, open price reductions or what have you) among the Independents were not to be outdone. So the price war raged for six or eight months, and Standard sold gasoline in Bedford on one occasion at 8 cents below normal for 36 hours.

A Loss to Somebody

DURING all this time Malott's service station on L street maintained its prices and held its patronage. Holding up prices when everybody about you cuts is popularly considered an easy way into the bankrupt court. But for some reason people continued to drive in at the Dixie Service Station for their gasoline. Lloyd Malott says he thinks the high price maintained was the station's best advertisement. He had always sold good material and his customers had no reason to think he had quit. His prices and his service were the same as before the price war.

"Secret rebates made by competitors, before the price war did us more harm than when the cut prices became public", Mr. Malott said. "Here are the approximate figures on our volume of business during seven months of the price war:

"In June we did about 27,500 gallons at the station. That was before Standard introduced the Q.D.A. and while

the worst of the secret price cutting was going on. In July we did roughly 28,800 gallons. In August the price war was still going along and we did more than 32,000 gallons.

"In September our business dropped off. September ought to be a peak month, but Bedford suffered a business depression about that time. I think we got our share of the gasoline business as we did 29,700 gallons.

"October and September were a good deal alike. The price war was still going on and the industrial depression continued. We did 28,500 gallons that month. In November business picked up remarkably. The weather was fairly good for the fall, and we sold 29,600 gallons in spite of the cold weather—almost as good a month as September.

"In December the weather was really severe but we turned out 25,700 gallons through the one station. This takes no account of tank wagon customers. We had one big tank wagon buyer then, but we have none at all now. We will not meet the quantity price the big tank wagon buyers are able to get. It is not good business. But when we had that tank wagon customer he increased his gallonage on our goods the same as we did at the station. He did it by talking quality to the customers just like we did.

Worth Garageman's While

"THIS customer operated two pumps at a station on the edge of town. He had our gasoline (Red Hat Gasoline) in one pump and Red Crown in the other.

"All this time he kept the same price on his Red Hat pump that we had on our pumps down town. The Red Crown pump right by it was anywhere from 2 to 8 cents cheaper. We told this customer to save his Red Crown tickets and show them to us and we would sell Red Hat to him at the same price. We did not consider that profitable gallonage, we did it to hold the customer, but we would not let him cut the price to the public. That gave him a wide margin on our gasoline and he worked hard to sell it. That is how he increased his gallonage. He used salesmanship to move the profitable product.

"I think the public wants a merchant to make a fair profit if he sells good stuff. We told customers honestly that we would close up before we would sell poor material or operate at a loss. They seemed to be in favor of that sort of a business policy for they kept on trading with us."

A Retail Business

MR. MALOTT'S organization does no wholesale business. The Dixie Service Station buys in tank car lots and sells every gallon of the gasoline bought now through that one five-pump station. The company sells no kerosene, but the bulk plant consists of four tanks of more than tank-car capacity. A good portion of the gasoline sold is high-test, which brings a premium of 2 cents a gallon.

The company maintains a membership in the Independent Oil Men of America. The two grades of gasoline sold are designated Red Hat and High Hat. Mr. Malott says he expects to stock a line of Red Hat motor oils as soon as the association's lubricating department and the motor oil standardization committee have the program in working order.

The company's service station is on one of the most desirable corners in town. It is one of the most attractive stations possible where business is really active. A great deal of personal attention, thought and taste has been spent on it. An accompanying picture shows a combination of three lights in a cluster directing the cusomer's course as he drives into the station, like a traffic sign. The large center globe says "Drive to the right". The small lower globes are in color. The one bearing the word "GO" on the right is green. The one on the left that says "STOP" is red.

This light cluster is a home-made idea. Its base is nothing more than a steel drum full of concrete.

Among the improvements planned for this spring are swinging baskets from the rafters of the canopy, large potted plants for the vacant spaces between pumps on the island and at the front of the canopy next the sidewalk. A local florist is already at work on these designs. A Rotary Lift is soon to be erected.

Lift for Big Jobs

THE Rotary Lift, Mr. Malott says, will be used for jobs where a customer has a lot of lubrication to be done at one time. Until the present time the station never has had a greasing rack or a drain pit. All draining of crank cases has been done on the station drive, the refuse oil being caught in a dish pan and removed after the customer was gone. The main idea in draining on the drive way was to attain speed. Mr. Malott and his station attendants all are convinced that a customer can be handled quicker this way.

"When two men can give their attention to it they can drain the crank case of a Ford, refill with fresh oil and have the customer rolling out of the station in two minutes," Mr. Malott says. "We often promise a man who professes to be in a great hurry, that we can handle his job in three or four minutes. The Western Union clock on the outside of the station under the canopy is not a mere matter of showing our customers the correct time every time they pass. We use that to time the oiling process. The customer is pleased when we assure him we can change his oil in four minutes and point to the clock and say 'time us', especially when we are able to serve him in even less time than we promise."

Some unique features have been worked into the interior arrangement of the station. There is a 7½ k.w., 110-volt generator in the basement of the station that produces all the current used there. The company has found it cheaper than city current. The generator is run with a marine engine using gasoline for fuel. It is manufactured by the Universal Products Co. of Oshkosh, Wis.

Air for tire service, and also for use in the Rotary Lift when it is installed, is provided with a compressor of the same type used in the stone quarries in the neighborhood, manufactured by the Ingersoll-Rand Co. The pressure is controlled automatically at the air tower by the motorist. There is a direct line outside carrying 205 pounds for truck tires.

The Dixie Service Station now sells seven grades of motor oil. The Tokheim Oil Tank & Pump Co., built seven special lube dispensers combining certain features that Mr. Malott liked in their equipment. The tanks were 130-gallon rectangular containers designed for kerosene. Lubricating oil pump and meter was installed with the visible flow attachment on each tank. At present the Malotts handle Pennsylvania grade oil exclusively.

There are no sidelines with this company. The shelves in the station office are used for petroleum products. There are, however, a few valve stems, automobile light globes and small standard items of motor equipment in sight. They are not handled for profit, according to the management, but kept on hand to accommodate motorists in need.

Holds Sales Meeting

GOSHEN, IND., May 8.—A sales meeting for all of its employes was held by the Abshire Oil Co. here on Apr. 16. The company has just become a member of the Independent Oil Men of America, Chicago, and is now displaying the spread eagle emblem at its stations.

John Abshire, proprietor of the company and also mayor of the town, was the toastmaster.

Speakers, besides Mr. Abshire, included: Charles R. Parker, sales manager who spoke on the purposes and achievements of the Independent Oil Men of America, and the value to the Independent oil men of handling a uniform gasoline under one name; L. V. Surtees, representative of the Mid-Continent Petroleum Corp., (Cosden interests), Tulsa, who told some of the high spots in the refining of petroleum; and J. Ridley, editor of "Filling Station," Houston, who spoke on advertising.

New Gulf Tanker Makes Initial Trip

PORT ARTHUR, TEX.—"Gulf Crest," the first of three new oil tankers to be completed for the Gulf Refining Co., Pittsburgh, Pa., arrived at Port Arthur, Tex. on her maiden voyage Apr. 24. The tanker carries 105,000 barrels of oil. It is equipped with twin Diesel engines, Sperry automatic compass and radio direction finder, according to Harry F. Perkins, of the Port Arthur refinery of the Gulf.

Foremen's Safety Meetings Being Held In Texas

Staff Special

HOUSTON, May 8.—Foremen's safety meetings now being held in the various Texas petroleum centers are resulting in good attendance and marked interest, according to Ray E Miller, safety director of the Mid-Continent Oil & Gas Association, who is in general charge of the work.

The safety meetings include all supervisory forces up through superintendents and officials of the companies, according to Mr. Miller, who says:

"The idea is to get the supervisory forces of the various companies together, so that they may exchange ideas and give each other the benefit of their experiences.

"Our hope is to increase the interest of the supervisory forces in safety, and in order to do that we are making the meetings strictly informal, encouraging thorough discussions on all debatable subjects."

The general divisions of discussions take the following lines:

(1)—The foreman's responsibility in employing men, to look after their physical condition where the company does not maintain medical examinations.

2—The training and supervision of the new employee or the old employee on a new job, so that he is acquainted with the work to be done and its attendant hazards.

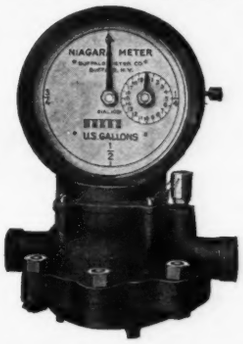
(3)—The discussion of common hazards, common injuries and unsafe practices by the man on the job; and means for their elimination through safety education, safety devices and mechancial guards.

(4)—The care of the injured employee, in which knowledge of first aid is encouraged, so that pain and danger may be temporarily relieved; and the injured transported for medical attention. In this part of the work especial emphasis is laid on the necessity for every employee to know the method of artificial respiration, the stoppage of arterial bleeding and the splinting necessary before a patient is moved.

Kansas and Louisiana have been fairly well covered in foremen's safety meetings and others are to be held later in Arkansas. The Texas itinerary, including meetings already held and others definitely called, include Port Arthur, April 29; Beaumont, April 30; Hull, May 3; Goose Creek, May 4; Mexia, May 6; Corsicana, May 7; Ranger, May 10; Breckenridge, May 11; Electra, May 12; Vernon, May 13; Burkburnett, May 14; Wichita Falls, May 17. Additional meetings will be scheduled later to cover still other Texas fields.

Arrangements for the meetings are in charge of local superintendents, who endeavor to get attendance from all the companies operating in the district and from every branch of the industry. Other industries are invited to send their men and frequently they do so.

NIAGARA GASOLINE METERS



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Oil Refinery Properties
of Southern Oil Corporation

at Sapulpa, Oklahoma, May 25, 1926

At the Court House, Sapulpa, beginning May 25, 1926, at 11 A. M.

Refineries Pipe Lines
Tank Cars Machinery
Miscellaneous Property

the following oil properties of the Southern Oil Corporation free of liens and encumbrances.

***Yale Refinery*—fully equipped, 5500 bbls. capacity; 222,000 bbls. crude storage, well water plant and storage tanks. Good switching service; main buildings of brick.**

***Pipe Lines*—main and gathering, from Northwest Hominy thru Osage, Cleveland, Jennings, Yale, Drumright and Shamrock fields. Now in use; in good shape.**

***Filling Stations*—at Yale and Drumright; 3-story office and garage building, pipe line warehouse and goods at Drumright.**

***69 Tank Cars*—capacity 10,000—8,000**

***Walters Refinery*—fully equipped, 2000 bbls. capacity, one 55 M storage tank, 4 in line to Devol Station.**

Total main lines in Oklahoma:

25,970′	2″ pipe
91,760′	3″ pipe
378,825′	4″ pipe

***Phone Lines*—following all main lines.**

***Cottages*— at Yale and Drumright and various pump stations.**

***Miscellaneous*—machinery and equipment.**

Address inquiries to—

R. E. WILSEY
Chairman Bondholders Committee,
First National Bank Building
Chicago

Through New Mexico

¶ Paul Wagner, production analyst of National Petroleum News staff presents the second and third of several articles written on his visit to the areas described

Drilling On Iron Provides Pastime for Months at Bell Test

ON THE BELL RANCH, SAN MIGUEL COUNTY, **New Mexico,**

THE wildcatter may not be a transgressor but his way is, nevertheless, oftentimes hard. Innumerable examples to prove the assertion could be drawn from the history of the oil industry, but there is a test now drilling on the Bell ranch, in San Miguel county, N. M., which is an excellent case in point.

The well referred to is the No. 1 cable tool test of the Marland Oil Co. of Colorado, in 3-13N-29E, on the old Pablo Montoya land grant, which forms a prominent and irregular-shaped interruption of the normal survey lines in the northeastern part of the state.

The test was started April 15, 1925 for the purpose of testing the Magdalena beds of Upper Pennsylvanian age. After more than a year's time it has reached a depth of 3965 feet, where the test is shut down waiting on a string of off-size pipe necessitated by the grief encountered in drilling.

The test is so thoroughly a wildcat that this drilling grief is perhaps no greater than was to be expected in an entirely new territory, where no clews were available with regard to underground conditions, either from nearby outcrops or from other test wells.

Although the general geologic section is exposed 200 miles, or more, to the westward, along the mountain ranges in central New Mexico, marked changes have taken place in the intervening area as regards both the character and thicknesses of formations drilled. As a result depth expectations had to be revamped several times when various formations were recognized and logged in the course of the drilling operation.

These changes inevitably increased the mechanical difficulties of drilling and the uncertainty of what lay "just ahead" led to further grief. This began with the first trouble experienced from caving redbeds of the Permian and Triassic, from 1400 to 1900 feet. Drilling was necessarily slowed down within these limits.

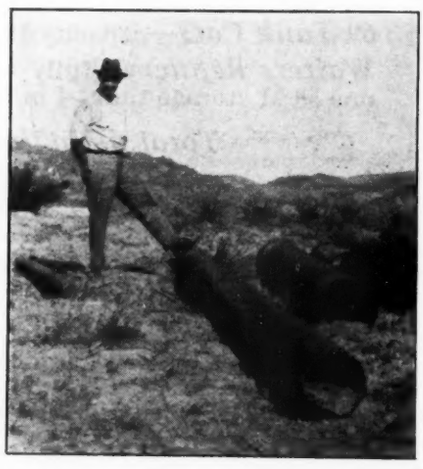
Casing Lost on Hole

Between 1900 and 3500 feet several fishing jobs developed, the most serious of which was the loss of three joints of 8-inch casing, including a shoe joint. After extended fishing two joints of casing were recovered, but all efforts to retrieve the shoe joint ended in failure. It was finally drilled up at a cost of nearly three months of work, along with a miscellaneous assortment of fishing tools, underreamer lugs, etc.

This "drilling on iron" finally resulted in the recovery of about 1700 pounds of pulverized material at one time representing almost every type of equipment used in the hole in cable tool drilling, except possibly the sand reel.

The 1700 pounds of pulverized ferric material, more commonly referred to on the job as powdered casing, was removed from the hole with a sand pump, as the cuttings were so heavy that they could not be held in suspension in the fluid in the hole long enough to pick them up with a regulation bailer.

The 6¼ inch casing was finally landed at about 3500 feet and 6-inch hole was drilled ahead to approximately 3830 feet. It was decided to straight ream the hole to this depth and cement the 6-inch there. This was done and drilling then was carried forward with 6-inch tools until the present depth of 3965 feet was reached. There a water sand, in conjunction with a cavey hole, made necessary the setting of 5-inch pipe, though only 135 feet of open hole intervenes between the present depth and the level where the 6¼-inch was set.



Bailer removed from Bell Ranch test after having been sidetracked and later falling back into hole. Note spiral groove made by bit in attempting to drill-by the bailer. Harry Wright, camp cook, standing.

Lease of 90,000 Acres

THE Bell ranch, out of which the Marland of Colorado has approximately 90,000 acres under lease, totals roundly 490,000 acres on which 16 structures have been mapped. Marland is the only oil or gas lessor on the ranch. The Canadian river, which originates in the mountains of northeastern New Mexico, veers southeasterly through the Bell ranch before trending more nearly in an easterly direction through part of this state and then the Texas Panhandle.

The history of the ranch dates back to 1824, when the King of Spain made a grant of about 1,000,000 acres to Pablo Montoya for services rendered the crown The grant was to lay between four prominent landmarks, which gave it the form of a rectangle.

About 1850 the grant was taken over by an English syndicate by purchase from the heirs of Pablo Montoya. This syndicate held it until about 1890, when its owners underwent foreclosure. The grant then was acquired by the Red River Valley Co., of New Haven, Conn., which still owns it..

Until 1897 no survey was ever made to define the actual boundaries of the grant. Due to this fact a number of small Mexican villages sprang up within its bounds, squatters living there. In 1897 when the grant was surveyed the squatters were either run out or their personal property purchased.

It was found at the time of the survey that there was a conflict, or overlap, between the Pablo Montoya grant and the Baca Location No. 2, another grant, practically half of the Baca Location being within the lines of the older concession.

The remainder of the Baca Location was acquired by the Red River Valley Co., which merged the two grants into the Bell ranch. Since 1917 approximately 400,000 acres of the original ranch has been sold and divided into four smaller ranches, accounting for its present total of about 490,000 acres.

¶ The present articles describe tests made by the Marland Oil Co. in San Miguel County and the Maljamar Oil Co. in Lea County.

To Wildcats of Importance

By Paul Wagner
N. P. N. Staff Writer

Maljamar Gasser Lonely Sentinel 30 Miles from Artesia Field

ARTESIA, N. M.

FOR a distance of 30 miles eastward from the Artesia field, in Eddy county, New Mexico, to the high scarp of the Llano Estacado, or staked plains, there stretches a desolate waste of shifting sand dunes, sparsely covered with mesquite and the hardier bunch grasses of semi-arid regions.

Horned toads and rattlesnakes are the principal inhabitants of the region, although a few venturesome members of the human family have braved its rigors to live in widely separated places. The miles that intervene, however, have guaranteed perfect freedom from troubles with the neighbor's children.

The aridity so noticeable above ground had, until recently, persisted with depth; forming the sole reward, if such it may be called, achieved by the wildcatter. The spell now has been partially broken by the discovery of gas in a well of the Maljamar Oil Co. on the Baish permit in the northeast of 21-17-32.

Drilling is proceeding in lime formation below 3260 feet in a deeper test for oil, after guaging 9,500,000 cubic feet of gas daily at 3132 feet. An orifice meter with 6-inch hole was used for making the test.

Well Near Foot of Scarp

THE well itself is about three miles east of the Eddy county line, in Lea county, west and southwest of the breaks of the escarpment, alone in its setting except for validation rigs on the Grace Mitchell permit, in 5-17-32, on the Pearsall permit, in 33-17-32, and in the Stearling Beardsley permit, in 15-17-32.

Results obtained by the Maljamar are now being reflected in the taking over of nearby acreage by the Ohio Oil Co. and the Marland Oil Co. of Colorado. A number of other companies also are doing geological work in the region, including the Skelly Oil Co., the Gypsy Oil Co., the Carter Oil Co., and The Texas Co.

It is expected that the first test to be put down in this region by any other company than the Maljamar will be by the Ohio. It recently acquired the Puckett and Jewitt permits, west and northwest of the Maljamar gasser. These include sections 12, 13, 24 and 25, in township 17, range 31, in Eddy county, the south half of sec. 6, the south half of sec. 8, and all of secs. 7, 17 and 18, in township 17, range 32, on the Lea county side of the line.

Acreage reported taken over by the Marland Oil Co. of Colorado is up on the caprock, which forms the outstanding surface feature of the region. The Marland holdings total approximately 4000 acres. The block includes sec. 11-16-32, where a shallow test well of Elliott and others has been shut down at about 500 feet. It is reported the Marland company will go ahead quickly with the deepening of this hole.

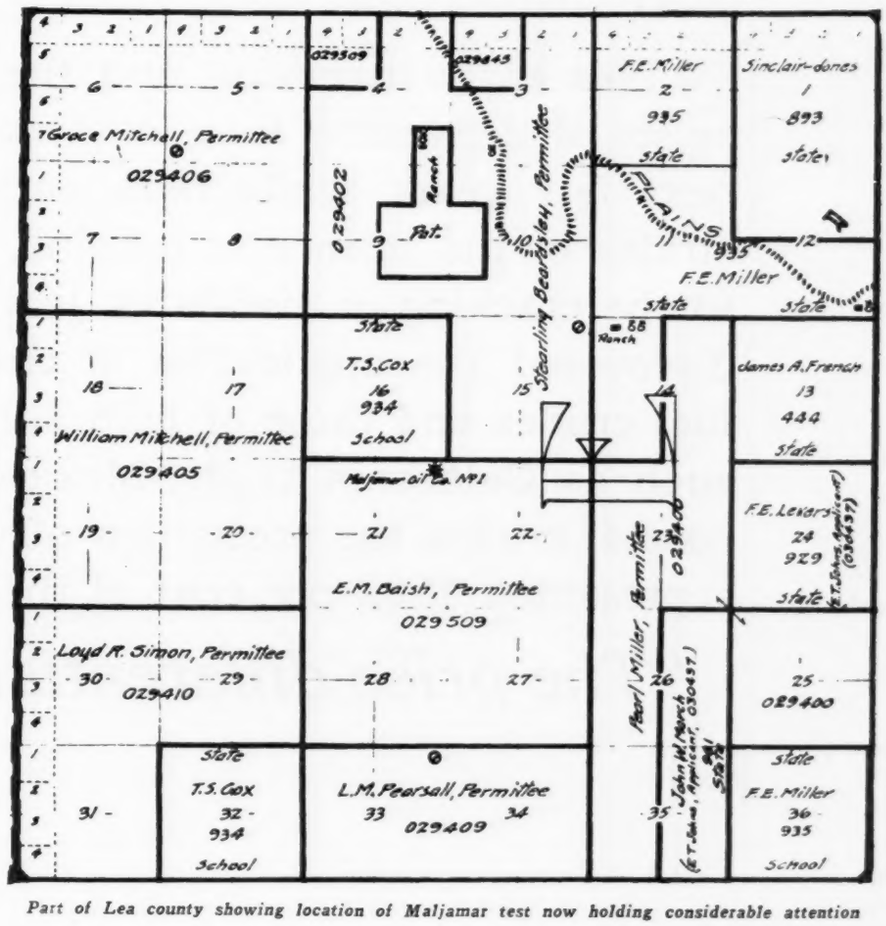
Standard tools are to be moved to the Mitchell and Pearsall permits for immediate drilling by the Maljamar, as a result of which nearly a half dozen tests soon may be under way in the general area virtually surrounding the first gas well.

Standard Rigs Necessary

DRILLING in this territory will form a contrast to Artesia development because of the universal use of standard equipment as compared with the National rigs used for earlier work in this region Although a few standard rig outfits are in use in the Artesia field, they have been the exception rather than the rule.

About 150 producing oil wells have been drilled in the Artesia field, which is now producing about 3000 barrels daily from sand series horizons lensed in with lime and gypsum beds, probably near the base of the Permian. These lenses are found at various depths, the topmost of which has been at about 1950 feet, a more consistent producing

(Continued on Page 52)



Part of Lea county showing location of Maljamar test now holding considerable attention

Quoted opinion of Mr. Walter C. Teagle, President, Standard Oil Co. (N. J.), given to the Federal Oil Conservation Board at Washington, D. C., February 10th and 11th, 1926:

(From the official record as printed by the Government Printing Office, Washington)

"The inventive energy of the industry which has been continuously engaged on the problem of increasing the yield of the major product was rewarded in 1912 by the commercial utilization of the cracking still, which for the first time produced a major product from a source other than crude.

"This early invention and the various processes which came into existence during the next few years, while representing enormous strides in the science of refining, were limited to the cracking of distillates, leaving yet to be discovered the application of cracking to the fuel crudes and those of high sulphur content, such as California crude, Mexican crude, and coastal crudes, the production of which in 1922 represented 45.82 per cent of the total supply.

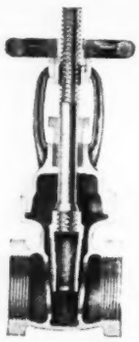
"The price differential between

gasoline and the fuel-oil value of these fuel and high sulphur crudes was the incentive for the further development of cracking processes which have been perfected within the past two or three years, and the industry is thus for the first time in a position to produce gasoline from them.

"Every grade of crude produced is now a potential s urce of gasoline."

(Italics used are ours)

Universal Oil Products Company
Owners of the Dubbs Process
310 South Michigan Ave
Chicago, Illinois



Sectional view Fig. 368, screwed Jenkins Standard Bronze Gate Valve, with yoke, outside screw, and rising spindle.

Fig. 325. Screwed, Jenkins Standard Iron Body Gate Valve.

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NATIONAL PETROLEUM NEWS

811 Caxton Bldg. Cleveland, Ohio

(Continued from Page 49)

horizon is found at approximately 2200 feet, and a few wells have been completed as deep as 2600 and 2800 feet.

Conditions in the Artesia field are virtually unchanged from the situation prevailing a year ago when the writer first visited this territory, except for an increased number of holes drilled. The Ohio Oil Co., The Texas Co., and Welch, Flynn & Yates are the principal operators, others including the Maljamar Oil Co., the Snowden & McSweeney Oil Co., the Danciger Oil & Refining Co., the Twin Lake Oil Co., Keys Oil Corp., Holman et al, Fletcher Oil Co., Pruitt et al, and the Dome Oil Co.

Limits of Artesia Development

A TOTAL of about 1800 acres has been proved productive in the Artesia field, the northern limits of which are roughly five miles from the southern limits. The field is separated into three patches of production by intervening barren streaks, so that development is not continuous from north to south.

The field has been proved for oil at its widest point for a distance of about a mile and a quarter, in the most southerly of the three patches of production. The central patch offsets the other two to the west, along the center of township 18 south, in range 28 east. With the exception of a single well of the Fletcher Oil Co., in 5-19S-28E, oil production is confined to township 18, range 28. Some gas has been found outside these boundaries to the west, south and southeast.

Crude is moved out in short pipe lines serving the field. Small skimming plant refineries are operated by the Continental Oil Co., at Artesia; the Sullivan Refinery at Dayton and the Gilliland Oil Co. of New Mexico at Roswell. These plants serve New Mexico trade, mainly in the Pecos River valley, where they are located.

The Continental's line, which runs 16 miles from the field into Artesia, formerly belonged to Welch, Flynn & Yates, pioneer developers, who sold these facilities to the Continental when it decided to build its skimming plant.

Take Over Old Sunshine Plant

W. B. Pape, formerly sales manager of Ellicott Jones & Company, refiners, San Antonio, Texas, who has organized and is now president of the Dependable Oil Co., dealers in petroleum products San Antonio, has just opened an office at 219 Brown Building, Wichita Falls, Texas. The general office at San Antonio, 501 Frost National Bank building, was opened in the fore part of March.

Associated with Mr. Pape are Walter K. Campbell, Roy Wight and Henry B. May. As the Western Oil Corp. they will operate the old Sunshine refinery.

LOGAN, W. VA.—The Aracoma Oil & Gas Co. opened a new service station here on Apr. 12. It distributes products of the Standard Oil Co. of New Jersey, New York.

Sees Growing Market at Premium Prices For Anti-Knock Fuels

By William G. Leamon
Inventor of the Stellarene Process

THAT the average automobile of today will show an increase in mileage of 20 per cent when supplied with a motor fuel of adequate anti-knock properties, which increase is sufficient to justify premiums in price of this percentage over standard grades of motor fuel, was the statement of William G. Leamon, consulting chemist and inventor of the Stellarene cracking process, before the Society of Automotive Engineers in Baltimore, April 24.

This increase in mileage is not the chief reason for the present popularity of the high test, or premium gasolines, he said; but rather it is due to the greater satisfaction the motorist gets from running on a fuel that doesn't knock, runs more quietly, picks up quicker and so on.

He said he believed there was going to be even a greater market in the future for quality motor fuels and that the refining industry generally, having now convinced itself of its ability to turn out sufficient volume of motor fuel through cracking to keep up with the demand, would turn its hand to the production in greater amounts of high quality motor fuels.

The accompanying remarks by Mr. Leamon, who was the first to announce the discovery of an anti-knock motor fuel direct from crude, through a vapor phase cracking process, constitute the first statement he has made under his own name for publication concerning his process and the nature of the product turned out.

THE so-called "cracking" of petroleum oils for manufacturing automobile fuel is merely a matter of "making little ones out of big ones."

While commercialization of the methods devised does have its legal difficulties, the art itself has not suffered from the nefarious plague of unwholesome legislation that besets the generation. The laws that have concerned the worker in the field have been nature's laws and the worker, or at least this worker, has found himself more or less continuously afoul of them.

The demand for increased quantity of fuel afforded the refiner his opportunity to grow, not only in point of volume of business, but in the equipment, means and methods of producing his wares. A modern refinery of today does not even look like a plant of 10 years ago. The quality demand of the automobilist now affords the refiner his opportunity to lift his business above the mire of unlimited competition, and protect his major product with the genuine goodwill of the buying public for a genuinely good article.

Quantity Demand Governed

THE cracking operations of refiners that have become of commercial importance up to the present time have been justified and their right to exist has been measured in terms of the quantity demand for motor fuel. They are all liquid phase processes,—that is, the oils of large molecule are heated under conditions whereby these molecules supposedly, and at least in great part, in liquid phase are shattered or broken up into smaller molecules, the maximum possible percentage of the fragments being made of appropriate size for use as fuel in automobile engines.

However, I believe, and believe it so thoroughly that I have dedicated a considerable proportion of my time to its cause, that the cracking process of the future will be vapor phase, that is, the demolishing operation will be carried on with the molecules in vapor rather than liquid phase. This is because your latest and wisest demand is for quality, commonly thought of as "anti-knock" fuels, and the vapor phase product is far superior in anti-knock properties. The demand for such fuels is to my mind a distinct evidence of progress, and have reason to be an optimist as regards this progress.

Times Have Changed

EIGHT years ago, when I was first producing in some quantity a vapor phase cracked fuel, I could scarcely get an audience of one or two, let alone one this size, to give my theme any attention. I was told on every hand that cost per gallon was the only consideration, and at that time, so far as the refiner was concerned, it was. But times have changed.

The four elements of a cracking system are heating, reacting, economizing and selections. The heating element is an important one in that the temperatures employed are quite high in the art of working petroleum oils. They range from 700 to 1100 Fahr. The reacting factor is primarily a time factor, and within narrow limits the temperature and time factors may be varied inversely to achieve a given re-

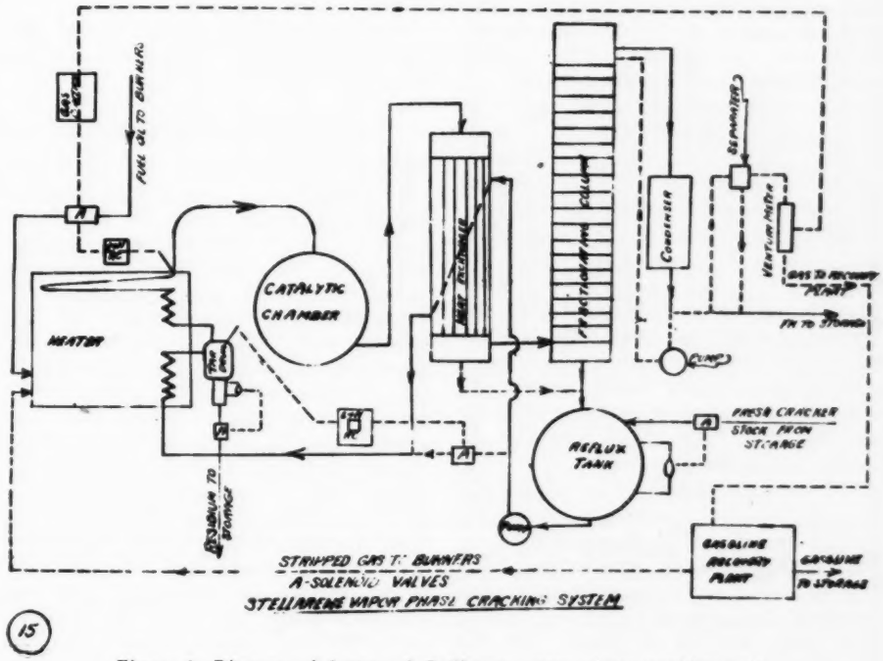

Figure 1—Diagram of layout of Stellarene vapor phase cracking unit.

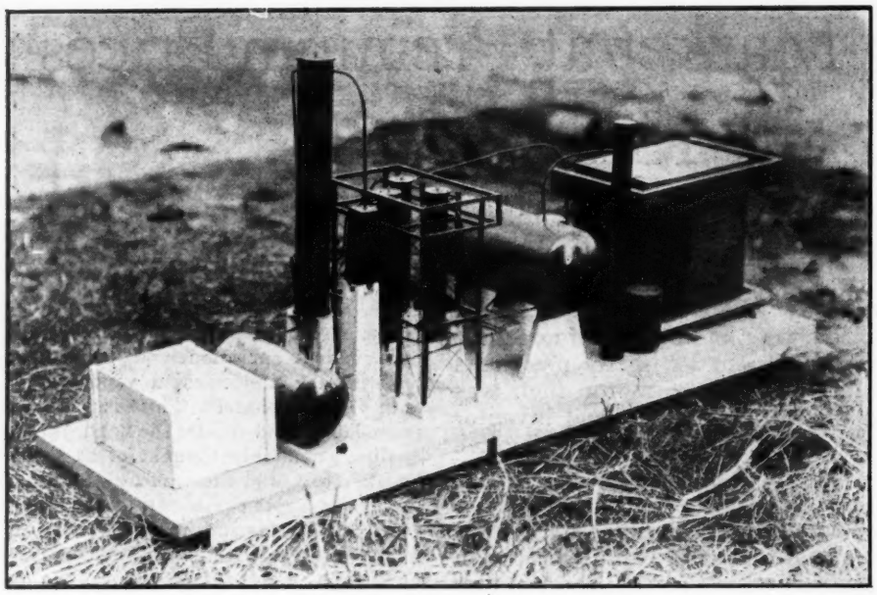

Figure 2—Photograph of a model Stellarene unit, comprising, left to right, heating unit, reaction unit, three heat exchangers, bubble column and condenser.

sult. Because of the high temperatures employed, the economizing system is vital and as competition makes its effects felt more keenly, it will receive increasing attention.

Due to the fact that only about one-third of the cracker stock can be converted to gasoline size molecules in the reaction zone at one time, and in practice most processes give a very much lower yield, it is necessary that a selection be made on the outgoing product so that most of the unconverted molecules may be returned directly or indirectly to the reaction zone.

Each cracking element is made separate and distinct unto itself, in the Stellarene unit and, to the best of our ability, the best equipment is selected for each function. The selecting is done by a bubble column similar to that used in the alcohol industry. The heat exchangers are by a design developed for this process. The heating element is the well-known Foster oil heater with extended surface rings over seamless steel tubing.

We unequivocally claim the best reacting element for the reason that therein is housed the catalyst that controls the composition of the product and reduces the time of reaction.

Figure 1 shows a more or less complete layout of a Stellarene unit. All oil returned by the selector, that is the fractionating column, for re-processing, as well as all heavy oils intermediately condensed, together with the fresh cracker stock, are mingled in the so-called reflux tank.

The pump takes the oil from this tank and forces it through the economizing units, that is, heat exchangers, to the lower heating coils of the heating element. At a predetermined temperature the mixture of oil and vapors are passed out of the heater into the so-called tar drum.

Accurate control of this temperature is effected by means of a pyrometric controller connected to a solenoid valve on a by-pass around the heat exchangers. In the tar drum the tars and extremely heavy oils, which could not be converted to vapors, are dropped out and allowed to escape through a solenoid valve on the escape line which is operated by a constant level float regulator.

The vapors pass back into the heating element where they are raised to as high a temperature as is possible without carbonizing the tubes of the heater. Where a uniform cracker stock is used, this temperature can be determined experimentally and maintained by a constant temperature pyrometric control connected to a solenoid valve on the fuel line to the furnace of the heating element.

Where the characteristics of the cracker stock vary a different system is used.

Vapors Enter Catalyzing Unit

THE vapors pass from the heater through the reacting zone containing the catalyst, thence to heat exchangers and fractionating column where all but the desired converted product and the gases produced are condensed and trapped back into the starting tank. The vapors leaving the fractionating column are condensed in the condenser and flow to storage. The percentage of motor fuel in this condensate can be controlled at will but usually is desired to be between 70 and 90 per cent. The gases not condensed in this condenser pass through a separator to take out the mechanically carried mist of liquid and then through a venturi tube and thence to a tail gas recovery plant, where the last remaining portion of gasoline vapors are removed.

This fixed gas then returns and constitutes the fuel used by the unit. The differential pressure produced by the passage of the gas through the venturi tube is employed to control the amount of fuel passing to the furnace. By maintaining a constant flow of gas the cracking reaction is maintained at a constant rate regardless of the character of the cracking stock, and the human element in determining correct heater temperature and maintaining it has been eliminated.

Model Stellarene Unit

FIGURE 2 is a photograph of a model Stellarene unit. The geometric relations of the various parts are clearly visible—the heating element, the reaction unit, the three heat exchangers constituting the economizing element, the bubble column, or selecting unit, and the condenser. In the little house at the end of the unit opposite the heater are contained the pumps and instruments.

The product in the intermediate storage tank in a cracking process, is a crude cracked product, called in the Stellarene process "yellow naphtha." Other processes christen their analogous products "synthetic crude," "pressure distillate" and numerous other names. The yellow naphtha is taken from storage, given a treatment and rerun in an equipment somewhat like the skimming plant.

The motor fuel passing from the fractionating column of the rerun plant is condensed and flows through another glass enclosed look-box in the tail house, and thence to finished storage. The gas leaving the Stellarene unit is taken to a recovery plant where the last bit of motor fuel is extracted from it and sent back through the same or equivalent look-box for inspection, and thence to finished product storage. The stripped gas from the recovery plant is used as fuel.

We will now proceed to acquaint ourselves with this finished product.

What Stellarene Is

IT has become an established practice to define the anti-knock value of a fuel in terms of the percentage of benzol necessary to be added to a standard gasoline in order to make the blend produce as nearly as possible the same amount of knock in a motor. Obviously, the composition of the standard gasoline and the purity of the benzol are controlling factors and account for some of the discrepancies often observed in the work of different laboratories.

Also, it has been found that the performance of a fuel in an engine running under conditions of established detonation, that is a continuous knock, is different from its performance when the engine is running out of detonation, that is without knocking, and that, therefore, a fuel may, and in fact, does have in some cases, two benzol equiv-

alent values. Stellarene is such a fuel. Further, it is to be noted that increasing amounts of benzol in the reference blend have an increasing anti-knock effect. This is the reverse of the usual effects of the so-called "dopes."

In Figure 3 you will note that the first 5 per cent of benzol has virtually no anti-knock value, and therefore any gasoline can almost be said to be equivalent to a blend of 5 per cent benzol with itself. A 10 per cent blend is not much better. The shaded areas indicate the relative effectiveness of progressive increase in percentage of benzol in 10 per cent steps.

Stellarene has usually been found to be equivalent to a blend of paraffin-gasoline and 90 per cent benzol, containing from 30 to 40 per cent benzol. Some determinations of the benzol equivalent of Stellarene, when running at the highest possible compression, before inducing regular detonation, have shown a higher than 40 per cent equivalent. This is the condition that will ordinarily be found in automobile practice. Other determinations have been made showing the benzol equivalent, under conditions in which regular detonation exists in the motor, of less than 30 per cent. Generally speaking, and I believe for all practical purposes, so far as automotive use is concerned, Stellarene may be safely considered as equivalent to an ordinary gasoline benzol blend containing 35 per cent benzol.

In Figure 4 are plotted the amounts of gas produced in a Midgley bouncing pin test apparatus by various fuels. Without going into detail, it is sufficient to note that anti-knock value is indicated by displacement of the curves to the right. The difference between curves 3 and 4 is a measure of the effect of volatility and is more than the effect of the last 10 per cent of benzol in a 40 per cent blend. The relation of curve 3 to the curves 2A and 2B defines the anti-knock value of this particular sample of Stellarene rather definitely in terms of these two particular benzol blends.

I feel logically compelled to express my conception of the reason for and the future of antiknock fuels, and I am going to do so at the risk of being charged with heresy.

A great deal has been said of late about the value of anti-knock fuels and many prophecies have been uttered. Even the first page of the Babson Report of March 30 is devoted to "The New Motor and the New Motor Fuel," mentioning first, you will note, the new motor. But I am not expecting the oft referred to "new motor" of greatly increased economy and efficiency due to greatly increased compression ratio.

I believe the present automobile motor is already over-compressed to a

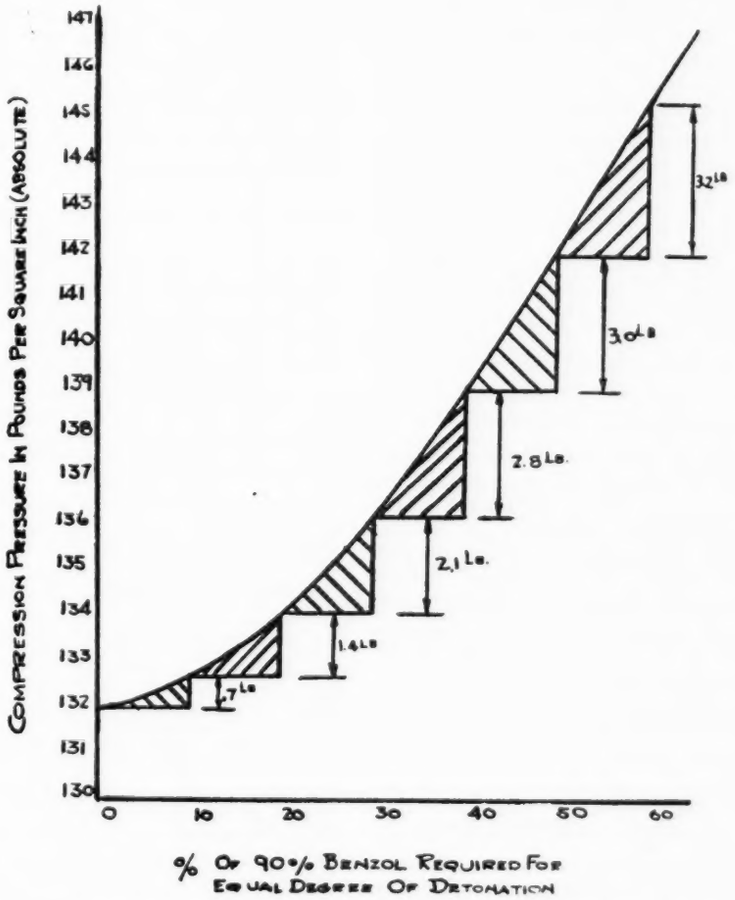

Figure 3—Per cent of 90% benzol required for equal degree of detonation.

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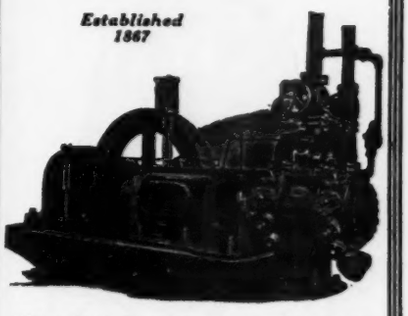

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31st & Roanoke Rd.
Kansas City, Missouri

Our "F" Base, Non Chatter Compound for Ford Oils. New. Different. **Better.**

Separates freely from water—no emulsion. Easily blended. Stays mixed.

Liberal sample for actual test awaits your request.

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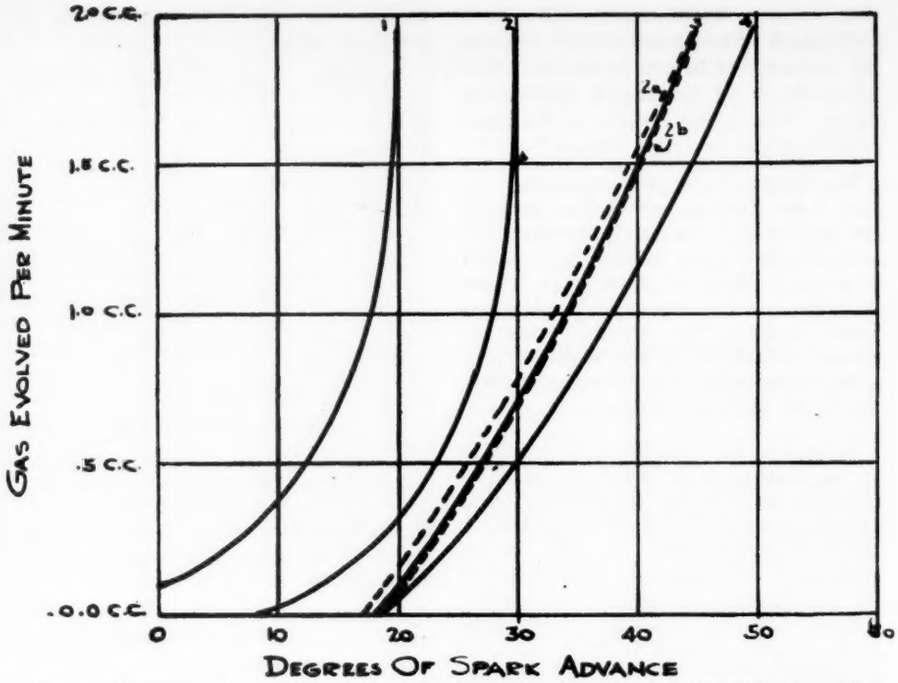


Figure 4—Amounts of gas produced in a Midgley bouncing pin test apparatus by various fuels. Anti-knock value is indicated by displacement of the curves to the right.

point where the present proposed fuels can only meet present requirements. The average automobile of today, and I have seen many tested, will show an increase in mileage of 20 per cent when supplied with a fuel of adequate anti-knock properties.

This is sufficient economically and mathematically to justify a premium of 20 per cent, which my experience tells me to be just about the psychological limit. But that is not the reason for the popularity of anti-knock fuels.

Experience again has convinced me that people pay premiums for automobile fuel because of the greater satisfaction they get from driving a motor which, to use the customary explanations given by the layman, "runs smoother," "doesn't knock," "runs quieter," "accelerates quicker."

"Christian Scientific?" Perhaps! But they are factors and I say they are the controlling factors in selling a premium motor fuel. I would rather sell—because it is easier to sell—one ounce of satisfaction than any pound of efficiency or economy that may be devised for the good of this great pleasure-loving, money-spending, happy and prosperous American public.

Russia Among Chief Buyers Of Oil-Drilling Machinery

[Foreign Commerce.]

Russia is listed among the chief purchasers of oil-well machinery from the United States during February in the compilation just announced by the Department of Commerce. It is show that 108,051 pounds of well-drilling apparatus valued at $49,175 and $3,570 worth of other oil-well machinery were exported to Russia during the month. Venezuela's order for Russia, totalling nearly $150,000. Venezuela also bought nearly $175,000 worth of other oil-well machinery during the month.

Reports on Alberta Field

CLEVELAND, O.—A recent publication by the Geological Survey of Canada contains an article by G. S. Hume on the Oil and Gas Prospects of the Wainwright-Vermilion Area, Alberta. In this region several large gas wells have been drilled and a small oil field developed within the past three years is one of the two producing oil fields in western Canada. The report contains a number of well logs and an account of the regional and local geology.

Alcohol Must Be Mixed With Panama Gasoline

Under the provisions of a recent Panaman decree, all gasoline consumed in the country for fuel or power shall be mixed with alcohol of 40 degrees Cartier in such proportions that the mixture shall contain 95 per cent gasoline and 5 per cent alcohol, according to Vice Consul, H. D. Myers at Panama. The object of the law is to create a greater market for the purpose of stimulating the sugar industry of the country.

Research to Give Data on Wire Rope For Developing Standards

Staff Special
HOUSTON, May 8

VARIOUS specifications on wire rope for other industries are none of them in their entirety exactly suited to oil country use, says C. C. Scharpenberg, national chairman of the American Petroleum Institute committee on the standardization of wire lines and manila cordage.

There is scarcely any other industry, he says, that requires both the strength and the flexibility of wire rope that appears to be necessary in the oil business. Wire rope in the oil country is subjected to very severe shocks, especially in cable tool drilling, as well as high bending and impact stresses for rotary hoist lines.

"It is recognized," says Mr. Scharpenberg, "that we have considerable to learn about the use of wire ropes, as well as the limitations on the various elements entering into wire rope manufacture. We expect to conduct considerable research this year in this regard, plans for which are now being prepared."

The feeling was expressed by Mr. Scharpenberg's committee, therefore, that it is at present inadvisable to adopt final specifications covering this type of equipment in oil country use. It is hoped, however, says Mr. Scharpenberg, that the various oil producers will immediately begin using the tentative A.P.I. specifications for the purpose of developing additional information.

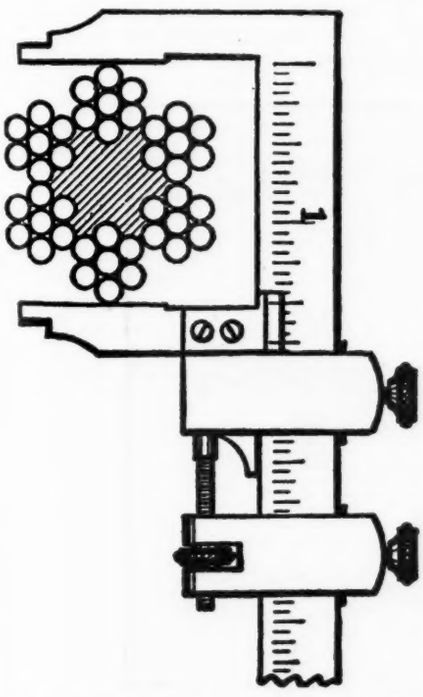


FIG. 1.—*Correct way to measure the diameter of wire rope.*
Use a machinist's caliper square.

Careful Records Urged

AN important point stressed by him is the advisability of keeping careful records of the results obtained by purchasing wire rope under specifications tentatively set up. In this connection, Mr. Scharpenberg, who is an assistant production manager of the Standard Oil Co. (California), says in a letter from his Bakersfield headquarters:

"Attention is specifically directed to the recommendation on the use and preservation of wire rope in the field. There have been many abuses of wire rope in the oil country in the past. In order to get the greatest benefit, it is necessary that proper care be utilized when using wire rope in the oil country.

"One user has proven during the last year that by improved application and usage he increased the life of his rope (in the same territory) more than three times over that which he formerly received."

Mr. Scharpenberg's report, in addition to outlining tentative specifications, includes recommended practice for the use and preservation of wire rope in the field. Under this heading comes the following points:

Recommended Practice in Field

1. Socketing line into socket, clean wires and socket with acid and use zinc. Zinc must not be heated too hot. (See Paragraph No. 19.)

Lubrication

2. All wire lines to give maximum life should be kept continually lubricated.

3. Use wire line thimbles and clamps with sufficient bearing so as not to put excessive strain at any one point.

4. Recommend that field men use a proper apparatus when removing line from reel to drums. Reel apparatus should have a brake so that line can be tightly spooled on drums.

5. Do not strike wire line with hammer, derrick hatchets or crowbar or cause any unnecessary nicks or bruises on wire.

6. String blocks to give minimum wear against sides of grooves in sheaves and observe that all sheaves are in proper alignment and are true in bearings.

7. Keep line tightly and evenly wound on winding drums; suitable spooling devices may be of value.

8. Sheets of bending stresses attached show the importance of large sized sheaves and drums.

9. Keep wire line grooves to proper form by proper testing and refinishing, if necessary.

10. Hardened metal, such as manganese or special alloy steel, heat-treated, will best serve for grooves in sheaves.

11. All rotating sheaves should exert a minimum turning effort.

12. Drum sizes so as to have only as few layers (preferably two) of cable as possible, are desirable.

13. Groove in sheaves should be made for one size of line only.

14. After stringing new wire rope on blocks and sheaves, run with light load for short time to set rope to working conditions. Use lubricant while doing this.

15. Sudden, severe stresses are injurious to wire rope and should be reduced to minimum.

16. When cutting a wire rope, see that both ends are securely seized with wire each side of cut.

17. Experience has proved that crystallization and wear increases with speed; economy results from increasing load within the safe limits and diminishing speed.

18. Great care is to be taken that no kinks be allowed to get into a wire line.

19. Care should be taken that the proper form be maintained in the throat of groove in the clamps gripping the rope. Slipping of wire rope through drilling clamps should not be allowed.

20. The splicing of wire rope requires considerable skill. The instructions for splicing rope are too long to be given here. They will be found in the catalogues of most of the wire rope manufacturers. The sequence of the opera-

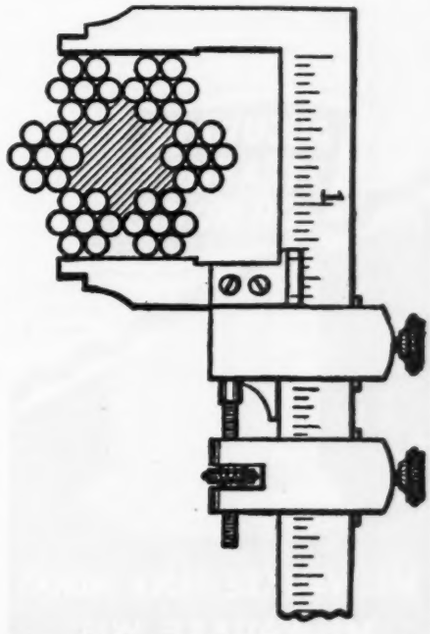


FIG. 2.—*Incorrect way to measure the diameter of wire rope.*

Milwaukee Visibles are the only pumps that are

"Compulsory-Accurate"

both in construction and operation.

Until the easy-acting Flow Lock is set to positive exact measure the pump is locked and will not serve gas.

Write for plan that guarantees increased gallonage.

That is the meaning of—

Table 1—Minimum Pounds per Square Inch

Grade	Galvanized	Ungalvanized	
		Individual Wires	Average Strength of Like Size Wires in Sample of Rope
1	216,000	240,000	250,000
2	198,000	220,000	230,000
3	171,000	190,000	205,000
4	150,000	170,000	185,000
5	60,000	80,000	95,000

Table 2—Ultimate Elongation For Grades 2, 3 and 4

Size of Wire	Ult. Elong. in percent
Wire .070" Diameter and larger	2 %
Wire .069" Diameter to .040" Dia.	1¾%
Wire .039" Diameter to .020" Dia	1½%
Wire .019" Diameter and smaller	1 %

Grade #1 Elongation not less than 1½%
Grade #5 Elongation not less than 6%
(Special Note: The values for different sizes of wire in Grades 1 and 5 to be developed.)

tions is carefully described and many clear illustrations show the progress of the work in the hands of experienced workmen. These illustrations give, in fact, most of the information which a person would receive by watching the making of a splice by skilled hands.

Form of Groove for Sheaves

1. The groove of drilling and casing line sheaves shall be made for 1 inch rope as standard, this groove to be made $\frac{1}{16}$" larger than the nominal diameter of the rope; it shall be given a 150° arc of support and the groove depth shall be 1¾ times the diameter of the rope.

2. The groove for any other size of drilling and casing line is to be specified by the purchaser, the diameter of groove to be made with a tolerance and depth corresponding to the 1 inch standard above.

3. The groove for sand line sheaves shall be made for ⅝ inch rope as standard, the groove to be $\frac{1}{16}$ inch larger than the nominal diameter of the rope, with a 150° arc of support and a groove depth three times the diameter of the line.

Materials covered in the tentative specifications apply to wire rope for oil country use, including cable drilling tool lines, sucker road and tubing lines, sand lines, rotary drilling or casing lines, pumping lines, guy lines, power pull lines, torpedo lines and rotary boiling lines.

Grades of Material

Five grades of material are set up, as follows:

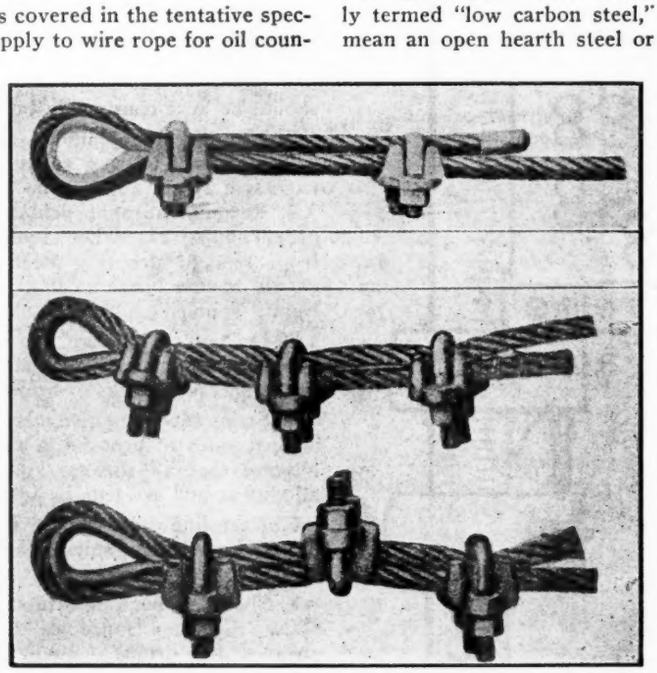
a. Grade 1 shall refer to a "high grade plow steel," being a high grade acid or basic open hearth steel of the tensile and torsion properties contained herein.

b. Grade 2 shall refer to a good grade of "plow steel," being a good grade acid or basic open hearth steel of the tensile and torsion properties contained herein.

C. Grade 3 shall refer to what is usually termed "extra strong cast steel," being a good grade of acid or basic open hearth steel of the tensile and torsion properties contained herein.

d. Grade 4 shall refer to what is usually termed "cast steel" and shall mean an acid or basic open hearth steel of the tensile and torsion properties contained herein.

e. Grade 5 shall refer to what is usually termed "low carbon steel," and shall mean an open hearth steel or Bessemer



Above: Correct way to fasten wire rope with clips. Below: Two wrong ways to use clips for fastening wire rope. The roddle should be in contact with the long end of the wire rope and the U-bolt in contact with the short end of the loop in the rope.

steel of the tensile and torsion properties contained herein.

Physical and Tensile Tests

ALL wires for physical test shall be taken from the wire rope and must be hand straightened before testing. For the tensile test of the wire a section shall be cut from the finished wire rope. Not less than one specification of each size of wire from each strand of the rope shall be selected, but the manufacturer shall not be required to test a total number of wires in excess of 25 per cent of the total number of wires in the rope. In case of controversy, the purchaser may at his expense test all the wires.

The tensile strength of the five grades shall not be less than the values given in Table 1.

Ultimate Elongation

THE ultimate elongation shall be measured when making the tensile tests of wire. The ultimate elongation, measured on a 10 inch length of specimen, at instant of rupture, which must occur within the 10 inches length, shall not be less than the values given in Table 2.

Torsion tests of wire and other provisions applying to manufacture of material are set up, the specifications also providing for inspection and rejection. The following tables are appended from this detailed report as showing the minimum ultimate strength of wire ropes as specified.

MINIMUM ULTIMATE STRENGTH FOR DRILLING & CASING LINES 6x19 STEEL WIRE.

		Cast Steel		Extra Strong C. S.	
Wt. Ft.	Diam.	Breaking St.	Safe Load	Breaking St.	Safe Load
.10	1/4	4,400	880	4,860	890
.15	5/16	6,200	1,240	7,000	1,400
.22	3/8	9,600	1,920	10,600	2,120
.30	7/16	13,000	2,600	14,500	2,900
.39	1/2	16,800	3,360	18,400	3,620
.50	9/16	20,000	4,000	22,400	4,480
.62	5/8	25,000	5,000	28,000	5,600
.89	3/4	35,000	7,000	40,400	8,080
1.20	7/8	46,000	9,200	52,000	10,400
1.58	1	60,000	12,000	68,000	13,600
2.00	1 1/8	76,000	15,200	86,000	17,200
2.45	1 1/4	94,000	18,800	106,000	21,200
3.00	1 3/8	112,000	22,400	128,000	25,600
3.55	1 1/2	128,000	25,600	146,000	29,200
		Plow Steel		High Grade Plow Steel	
Wt. Ft.	Diam.	Breaking St.	Safe Load	Breaking St.	Safe Load
.10	1/4	5,800	1,060	6,300	1,260
.15	5/16	7,600	1,520	9,000	1,800
.22	3/8	11,500	2,300	13,500	2,700
.30	7/16	16,000	3,200	18,800	3,760
.39	1/2	20,000	4,000	24,200	4,840
.50	9/16	24,600	4,800	29,000	5,800
.62	5/8	31,000	6,200	38,000	7,600
.89	3/4	46,000	9,200	52,600	10,520
1.20	7/8	58,000	11,600	80,000	14,000
1.58	1	76,000	15,200	90,000	18,000
2.00	1 1/8	94,000	19,800	112,000	22,400
2.45	1 1/4	116,000	24,000	138,000	28,000
3.00	1 3/8	144,000	28,000	168,000	34,000
3.55	1 1/2	164,000	32,000	196,000	40,000

FOR SAND LINES 6x7 HEMP CENTER

		Cast Steel		Extra Strong C. S.	
Wt. Ft.	Diam.	Breaking St.	Safe Load	Breaking St.	Safe Load
.125	1/4	5,000	1,000	5,900	1,180
.15	5/16	7,000	1,400	7,900	1,580
.22	3/8	9,200	1,840	10,500	2,100
.30	7/16	11,000	2,200	12,500	2,500
.39	1/2	15,400	3,000	17,700	3,600
.50	9/16	20,000	4,000	22,000	4,400
.62	5/8	26,000	5,200	29,400	5,800
.75	11/16	30,800	6,200	33,000	6,600
.89	3/4	37,200	7,400	42,000	8,400
1.20	7/8	48,000	9,600	56,000	11,200
		Plow Steel		High Grade Plow Steel	
Wt. Ft.	Diam.	Breaking St.	Safe Load	Breaking St.	Safe Load
.125	1/4	6,800	1,360	7,700	1,500
.15	5/16	8,800	1,760	9,700	1,900
.22	3/8	11,800	2,400	13,000	2,600
.30	7/16	14,000	2,800	15,500	3,000
.39	1/2	20,000	4,000	22,000	4,400
.50	9/16	24,000	4,800	26,000	5,200
.62	5/8	32,000	6,400	35,000	7,000
.75	11/16	36,000	7,200	40,000	8,000
.89	3/4	46,000	9,200	50,000	10,000
1.20	7/8	62,000	12,400	66,000	13,200

FOR GUY AND MISCELLANEOUS WIRES

Wt. per 1,000 Ft.	Diameter	Approximate Strength
75	1/4	1400 lbs.
95	5/16	1800 lbs.
125	3/8	2300 lbs.
210	1/2	3800 lbs.
295	5/8	5000 lbs.
415	3/4	6500 lbs.
510	7/8	8500 lbs.

Reviews Testing Done At Baxter Basin

CLEVELAND, O.—About 25 wells have been drilled in the Baxter Basin field of Sweetwater county, Wyo., the majority of which found gas in volume from a million up to 70 million cubic feet a day. The field has been a disappointing one, as it is located far from consequential market. No oil was found.

The U. S. Geological Survey in 1920 reported on the oil and gas possibilities of the field, outlining a large structure. Now, after the structure has been comprehensively tested by a number of companies, including the Ohio Oil Co., Mid-West Refining Co., Producers & Refiners Corp., Associated Oil and others, the Survey has gone back and reported on what the testing revealed. The report is by Julian D. Sears, and is Bulletin 781-b. He says, in conclusion:

"After gas in large amounts had been discovered by the first wells on the north and south domes, it was hoped that oil would be found either by deepening these wells or by drilling others. This hope was based on three lines of reasoning. First, it was supposed that both gas sands belonged to the Frontier formation and that the possibly oil-bearing Dakota had not been reached. Second, it seemed likely that the two sands in which gas was found near the crests would contain oil farther down the flanks. Third, regional metamorphism of the rocks has not progressed so far that all the hydrocarbons must necessarily have been changed to gas; this is shown by the coal of the Rock Springs and Almond formations, and also by coal from the Frontier formation in the well in Sec. 2, T. 17 N., R. 104 W. (No. 8) (obtained by the Midwest Refining Co., and analyzed by the Bureau of Mines), which contains only 52.3 per cent of fixed carbon in the moisture and ash free state.

"Results of later drilling have almost dispelled the hope for oil. It is now known with certainty that the 'lower gas sand' is the Dakota. Furthermore, the occurrence of water so high on the flanks of the north and south domes leaves little room for oil between the water and the gas. It still seems possible but it is not probable that oil will be found on the flanks of the middle dome or in narrow zones around the north and south domes."

Marketing Concern Opens Houston Warehouse

HOUSTON, May 8.—The Producers Marketing Co., with headquarters at 612 West Bldg., Houston, has opened a warehouse alongside the International & Great Northern railroad and will handle a line of lubricants under its own trade name, in addition to selling gas and fuel oils in carload lots.

Truck deliveries of lubricants to the trade in the Houston territory are planned.

The personnel of the Producers Marketing Co., consists of T. F. Wood, formerly identified with the Gulf and Texas companies, who more recently has been handling federal receiverships of producing properties and field pipe lines in the El Dorado, Ark., territory; his son, H. J. Wood, who was until recently a student at Rice Institute; and P. C. Fricke, for 15 years in the mercantile business at El Campo, Texas.

FISHING PLAYED OUT BUT MAYBE SOME SHOOTING

We See By The Papers—

Conscious and unconscious humor concerning the oil industry from the press of the nation.

National Petroleum News

This Started to Be Something

Editor of the Galena, Kans., Times settled himself in his chair and began composing an editorial on economics. He happened to look out of the window. There, bright and shining, was the new Standard service station. He never got back from the literary detour:

Our sympathies have always been with labor where it is a question of labor vs. capital. Particularly is this so where there is room for doubt as to which is right. There is, however, a happy medium in business as well as in nearly everything in life. The greatest business in America is the nation's business. The post-office is the head of the greatest business. But as to individual business not a part of public utilities such as the telephone, telegraph and railway transportation, probably the greatest of all is farming. However, there is one firm in the United States that has stood the acid test of many decades. It is the Standard Oil Company of Indiana, etc. However, there is in reality only one Standard Oil Company, one Red Crown gasoline and one Polarine Oil (the perfect motor oil). Here in Galena, Henry Clover is the manager for the Standard station. A new Gilbert and Barker pump has been installed and it is brilliantly lighted by night. The red crown is illumined and the pump is something of which Galena may be proud. It has a clear vision tank and operates on a most simple basis of accuracy.

* * *

Anybody Looking for Trouble?

Jena, La., Times tells how obliging the folks in Tullos are:

Tullos, the center of the big operations, is growing by leaps and bounds, and the population is estimated to be 4000 at this time. Every day witnesses new business houses going up, which are rented or leased at fabulous prices.

The rough element is greatly in evidence and any outsider going to Tullos looking for a scrap will be accommodated before he gets his feet on the ground good. However, no very serious trouble has occurred since the first week of the new boom, though two of the sporting fraternity aired their grievances last week from the business ends of six-shooters.

"Exhibit 'A'"

What will happen at the annual meeting, according to the Paxton, Ill., Record:

At the meeting which is called for 1 o'clock in the afternoon the progress of the well will be reported and the financial conditions of the company will be shown. The officers of the company will be shown.

* * *

Any Country Editor Knows

The final paragraph of a story in the Brookings, S. D., Register, concerning an oil jobber who has sold out, contains what might be interpreted as a sly criticism of the community:

Mr. Bartlet states he intends to retire from any kind of business for a long time. He will devote his time now to collecting his accounts which probably will keep him busy for some time.

* * *

Two Rigs are Better Than One

From the Paxton, Ill., Record:

The well has had four very good showings since drilling operations started.

In order to speed up the drilling work the stock of the company has been increased to $100,000 and two rigs or more will be put on the job.

* * *

They Did What They Came to Do

From the Calhan, Colo., News:

Six carloads of oil "lookers" came down from the northern part of the state on Thursday afternoon to look our structure over.

The Editor's Viewpoint

National Petroleum News

The Job Is To Make Jobs

WISCONSIN would now make oil companies post their lowest gasoline prices in letters an inch high. 'Tis said the previous postings in any old kind of a letter was ineffective because the public couldn't read it. Possibly the public could read it all right, but maybe it didn't want to. If the letters were a foot high it is possible the public would not read it.

The thought is beginning to start in the oil industry that the public is not so much interested in every little price cutter's price for gasoline as the oil companies have long believed. The reason may be that the public has something else to do than sit around and watch and talk about the oil companies all the time.

Of course, with the aid of the Wisconsin Department of Markets and lots of resultant advertising, and gasoline prices in letters a foot high, it may be possible to get the public—at least the newspapers—to do enough talking about it to permit the Wisconsin office holders to continue their paternal jurisdiction over the oil business.

We realize that Wisconsin oil men—at least a great many of them—have long been strong for this interference by their Department of Markets and believe it a good thing for the public and the industry. Perhaps it is rash to hazard a contrary opinion but to a casual outsider it would seem that no particular good has come or can come of the interference

Public officeholders get political prestige and votes by doing things. The more they can seemingly do on behalf of the public, the more money and associates in office they can get which will permit them to do still more. While the men in the Wisconsin Department of Markets may be the most estimable in the world, the fact remains that their own selfish interest is contrary to the interest of oil or any other business. The more regulating the department can do the better for the department from a political standpoint and, if history amounts to anything, the worse for business.

Raising gasoline prices to letters an inch high is only a step toward making them high enough so that it will be no job at all convincing some voters that the public is reading them. It is to be hoped that oil men in other states will leave this price posting business alone until Wisconsin has had plenty of time to try out the idea—say a matter of five or ten years—and some real facts are obtained by unbiased persons as to its results, if any.

Let everyone take a look at the so-called oil inspection departments of many states that have been with us now for twenty years past their usefulness but they are still with us. Some of them have tried to make good their sinecure by "inspecting" gasoline for a meaningless gravity test.

It would be the simplest thing in the world for every state with oil inspection to have a Wisconsin gasoline price posting law and then instruct the oil inspectors to go around and inspect these signs for height and legibility, at so much per inspection. Nonsense? Yes, but there is greater nonsense than that proposed to every state legislature every session for enactment, and it is surprising how much of it gets by.

Let the oil industry bear in mind that political history back to the beginning of civilization shows that it is far easier to create a new job on the public payroll than it is to take one off. Long after the supply of petroleum and shale is exhausted, we quite likely will find the state oil inspectors, in their various capacities or disguises, just as firmly fastened to the public payroll as ever.—W. C. P.

Let New Books Tell Something New

THERE could be such a state of affairs as too many books. For many years the oil industry was bookless. No works had been written setting forth the lessons learned by experience. Men solved certain problems, locked up the answer in their minds or their desks or at tne most, passed along the information to an associate. One reason for the reticence was the fear of Standard and anti-Standard competitors that each would learn some of the secrets each cherished.

Now the book age is upon us. Numerous works have been turned out within the past five years; more will be forthcoming steadily. It requires a long shelf to accommodate them.

We can think of several books of the past two or three years that fill a real place in the betterment of oil industry practices. Some two or three are well-nigh indispensable. There are some others that would not be missed were they suddenly to vanish from existence.

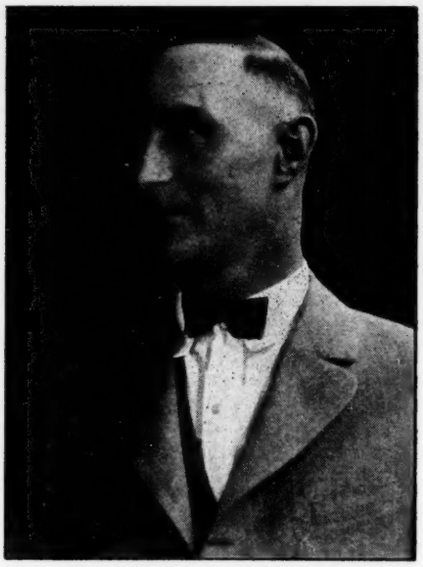
The man who is thinking of writing a book on oil should ask himself this question and be guided by the answer: Have I anything original to contribute to oil knowledge, anything that I have, through first-hand observation and first-hand effort, learned, or put together from what others have found out before me, or am I about to gather up the books other people have written and issue a book borrowed from these? The latter class needlessly duplicates petroleum literature.—L. E. S.

Effect of Rate Increase

THE Wall Street Journal in a recent issue editorially puts out the suggestion that oil be among those industries made to bear the 5 per cent proposed advance in railroad freight rates. The editoral points out that a rate advance of 5 per cent in the west would be productive of a re-investment by the railroads in that territory of he eighty-million dollars expected increase in revenue; hence, it argues it would be well for the west to consider accepting the increase in rate by way of making an investment in itself.

The Wall Street Journal is rather far removed from the oil men and their highly competitive conditions, particularly in the west. If the Journal is arguing for a 5 per cent advance in the west alone, so far as oil is concerned, it would probably mean the shrinkage of the market territory in which the independent Mid-Continent refiners can market. It might be very good business for the farmers to accept an increase in rates and let that be re-invested in the west; but it's to be questioned seriously if there will be any increased revenue from the oil industry for re-investment in the west. The effect of a rate advance would be, as anticipated, to restrict still further the marketing territory of the Mid-Continent people, and drive oil companies to use other means of transportation as much as possible.—W. C. P.

Fire Prevention Program Carried Out By National Petroleum Association



J. B. Northrop

President of Association of Fire Marshals of National Petroleum Association. He is superintendent of the Ohio Valley Refining Co., St. Mary's, W. Va.

Staff Special

CLEVELAND, May 10

SINCE the Association of Fire Marshals of the National Petroleum Association was formed in February, fire prevention activities have spread to the point where 62 refineries scattered through several refining districts are now participating in the work of reducing hazards and training crews from among employes to combat quickly any fire that may start.

Fire marshals have been appointed in all the 62 refineries and many are reporting monthly on conditions about their plants and tanks to Houston Dunn, managing director of the National Petroleum Mutual Fire Insurance Co., Philadelphia, who also has been chosen managing director of the marshal's organization. The president of the latter is J. B. Northrop, superintendent of the Ohio Valley Refining Co., St. Mary's, W. Va.

Bulletins to Fire Marshals

BULLETINS are being sent to plant fire marshals telling them of specific hazards and how these may be remedied and inspection blanks have been distributed for monthly reports to Mr. Dunn. The two inspection forms are reproduced herewith. One covers the refinery and general conditions about the plant and the other covers tankage.

These forms are made out in triplicate. The fire marshal sends one copy to Mr. Dunn; gives another to the plant manager or other executive who supervises fire prevention, and keeps the third copy himself. The forms are to be filled in after each plant has been thoroughly inspected. Attention of the plant executive in general supervision of fire prevention activities is to be called by the fire marshal to hazards and

FIRE MARSHAL'S MONTHLY FIRE INSPECTION REPORT

NAME CO._____ DATE_____

✓ (Check) Indicates condition OK.
× (Cross) Indicates condition NOT OK.
O (Zero) Indicates condition does not apply.

Explain unsatisfactory conditions and action taken to correct them in detail under Remarks and on reverse side.

1. GENERAL CONDITIONS:
   - (a) Rubbish and sweepings properly cared for and removed each night?
   - (b) Lockers, closets and benches clean?
   - (c) Oily waste, etc., kept in metal cans with tight covers?
   - (d) Any unnecessary combustible material in or around building?

2. HAZARDS:
   - (a) Combustible material touching hot steam, exhaust and oil pipes?
   - (b) Broken lighting fixtures, vapor proof globes missing or defective, or loose wires, etc.?
   - (c) Defective insulation on electric extension cords or string lights?
   - (d) Electric extension cords looped over nails, pipes or machines?
   - (e) Fuses replaced by wire or metal or otherwise defective?
   - (f) Drip pans under pumps and motors not kept clean or not provided where needed?
   - (g) Oil leaks from pumps, gaskets, valves, pipe joints, etc.?
   - (h) Gasoline or kerosene in open containers?
   - (i) Naphtha thinned paint cans and barrels not removed from building when not in use?
   - (j) Any violation of smoking rules, burned matches, or cigarette stumps noticed?
   - (k) Were all heating appliances properly safe guarded?
   - (l) Are all bearings regularly oiled? Did you look for hot ones?
   - (m) Did you find any belt rubbing wood-work?

3. BUILDING CONDITIONS:
   - (a) Broken windows or holes in walls?
   - (b) Are all fire doors in proper mechanical working order, and so equipped that they will close automatically in case of fire?
   - (c) Were any fire doors wedged or tied open?
   - (d) Are all fire doors, fire shutters, exterior doors, and windows closed when building is not operating?
   - (e) Are all exits clear and in good condition?

4. EXTINGUISHERS? FIRE PAILS? CHEMICAL ENGINES AND HOSE:
   - (a) Easily accessible?
   - (b) Full and ready for use?
   - (c) Nozzles clear (not plugged)?
   - (d) Hose dry and in good condition?
   - (e) Nozzles, Spanners and gaskets in place?
   - (f) Were any fire drills held during the month?

For Remarks and Corrections, use reverse side of sheet.

Fire Marshal

FIRE MARSHAL'S MONTHLY FIRE INSPECTION REPORT

TANK INSPECTION

NAME CO._____ DATE_____

✓ (Check) Indicates condition OK.
× (Cross) Indicates condition NOT OK

Explain unsatisfactory conditions and action taken to correct them in detail under Remarks and on reverse side.

Tank Number	Leaks or combustible material around tanks	Hatches, Gauging connection properly closed	Vents and Screens in proper condition	Other Defects	Tank Number	Leaks or combustible material around tanks	Hatches, Gauging connection properly closed	Vents and Screens in proper condition	Other Defects	Tank Number	Leaks or combustible material around tanks	Hatches, Gauging connection properly closed	Vents and Screens in proper condition	Other Defects

For Remarks and Corrections, use reverse side of sheet.

Fire Marshal

These forms in triplicate are to be checked as indicated on their face. One copy is given the fire prevention executive of a refinery; another sent to the managing director of the fire marshals' association, and the plant fire marshal retains a third. While one form covers a refinery specifically, distributing companies may get ideas from it for a checking form for terminal, bulk station or service station fire prevention work. The tank inspection form could be used by producing, refining or marketing companies alike.

recommendations are to be made for correcting bad conditions.

Reports on all fires no matter how small also are to be made to Mr. Dunn with comments on their origin, how extinguished and suggestions about how a recurrence may be prevented.

The importance of fire prevention work was set forth in a letter to each plant fire marshal by R. A. Wotowitch, Henry L. Doherty & Co., New York, trustee of the National Petroleum Association department of welfare and insurance. The fire prevention campaign also is outlined.

Letter to Fire Marshals

THE letter, in part, follows:

"Fire prevention has three important phases:

"1.—Not allowing fires to start.

"2—Not permitting fires to spread that do start.

"3.—Extinguishing fires that start and spread in spite of our best efforts.

"It is rather remarkable that most programs begin and end with the last item. Seldom do they take into account the important features of the first two items and still more seldom is any continuous and concerted effort made by an organization in educating its men fully along the lines of the first item.

"Most plants have a fire chief, and to him is entrusted the care of fire apparatus—and that is as far as most programs go. Upkeep of fire equipment will not prevent fires, nor will it physically limit the spread of fire.

Whose Job It Is

"THE prevention of fire is usually considered to be Everybody's job and this being so, it really becomes Nobody's job. To correct this situation at your plant, fire prevention has been made One Man's job—Your job. Hereafter the success your company meets with in preventing fires will depend largely on you. A great deal of care and thought on your part will be necessary. To assist you and to give you the benefit of special knowledge which we have been able to obtain on the subject of fire prevention, we are going to suggest how this work at your plant should be organized and carried out.

"We will suggest specific campaigns for special hazards. We will attempt to mould our program to meet the conditions which exist at your plant, with your hearty cooperation in giving action to the thoughts we will suggest and to other thoughts which will naturally come to you as you proceed with this work, we feel sure that you will be rendering your company an invaluable service.

"Any fire prevention program, to be effective, must be continuous. The first item we shall suggest will be the establishment of regular and thorough fire inspections. These should be made by you—once a month. To crystallize the manner of conducting these inspections and to point out the matters which need regular examination we are sending you a supply of fire inspection forms. You will observe that one of these forms is

—write for a copy of the new TELESCOPER working model—

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GAS OILS
PARAFFINE WAX
ASPHALT

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CYLINDER ENGINE
CORDAGE

RED AND PALE PARAFFINE OILS

"DEFIANCE"

REPUTATION

The co-operation of hundreds of people towards making a better barrel, has produced results. Results make reputation.

Reputation is not created in a year, although it may be lost in a day.

Only incessant vigilance and fixed integrity during the past years, have earned for Defiance Steel Barrels the reputation they enjoy among shippers of petroleum products.

THE AMERICAN STEEL PACKAGE CO.

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Jobbers and Car Load Buyers!

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Order in Assorted Cars { In Drums / In Tank Cars

From the OLDEST Pennsylvania Refiners

A. D. MILLER SONS' CO., Pittsburgh, Penna.

intended for refinery or oil plant buildings and that the other form is intended to cover oil tanks.

Make Personal Inspections

"TO make your work 100 per cent effective, you personally should inspect each building and tank for each of the conditions enumerated. In every case that an unsatisfactory condition is observed, your report should contain a detailed statement as to what was wrong, and what steps have been taken to correct the bad condition.

"Obviously, these inspections will not be worth anything to anybody unless they uncover fire hazards and set the machinery in motion for eliminating or correcting them.

"A mistaken impression prevails that correction of fire hazards entails large expenditures of money. Most often it is the trivial circumstance which causes the large fire. Such condition can usually be corrected by the expenditure of a few dollars, and in some cases, a few cents. Frequently they simple involve doing a job in another way than it is being done now, at no additional cost. We would recommend to you that your activities be directed largely toward remedying conditions as you find them in a reasonable and inexpensive way.

"May we suggest the importance of maintaining your executive's interest in this work? Backed by the management, your program will be very successful. Without their backing, it will be hard for you to accomplish all that you should accomplish. Keep them interested in the subject of fire prevention and working with you. This is best done by exercising great care and judgment in your recommendations to your executives and in showing them how it is possible to accomplish a great deal with small expenditure."

Intercoastal Canal Building

PORT ARTHUR, TEX.—A direct road from Orange, Tex. to Port Arthur has just been completed. The Sabine road is being extended to Port Bolivar on Galveston Bay, which will make a direct route between New Orleans, Lake Charles, La. and Galveston, through Port Arthur. Tourists on this road will pass the Orange oil field, plants of the Atlantic Refining Co., and The Texas Co., and directly through the 100,000-barrel refinery of the Gulf Refining Co.

The Sabine ship canal system has been extended to Lake Charles, La. and the first tankers brought out a cargo of oil in April. Work is progressing on the intercoastal canal which will connect the Mississippi river near New Orleans with Corpus Christi, Tex. by inland water. It is said this will make possible barge shipments to all parts of the central states, up to Chicago and the Great Lakes, connecting with Pittsburgh, Pa., Cincinnati, O., St. Louis and other large cities.

ENID, OKLA.—Weldon Oil Co. has just bought the tank station of Phil Dewell at Pond Creek, Okla., according to J. R. Weldon, proprietor.

Testing Vapor Tension of Natural Gasoline By New Method Described

By Harold S. Davis
Arthur D. Little, Inc., Boston

TULSA, May 10

THE natural gasoline industry has never been completely satisfied with present methods of taking the vapor tension of its product which is necessary on every shipment under rules of the Interstate Commerce Commission. A few years ago there was a lengthy discussion of the Anderson method which was proposed to supplant the present standard method.

Extended tests proved that the then standard method was still the best known and it was continued in force.

Walter Reid, of the Lone Star Gas Co., Dallas Texas, has devised a new method which is now being considered by the American Petroleum Institute. This method will be made public to the industry for the first time on May 18, at the meeting of the Natural Gas Association at Tulsa. Mr. Reid will present a paper explaining the theory of his device and give results of tests.

The accompanying paper has been prepared for National Petroleum News by Harold S. Davis, of Arthur D. Little, Inc., of Cambridge, Mass. It describes a vapor tension testing method developed by Mr. Davis and discusses the theory of the measurement of the vapor tensions of natural gasolines.

THE regulations of the Interstate Commerce Commission regarding the transportation of inflammable liquids are of great importance to the natural gasoline industry. On the one hand they are concerned with the risks to property and even lives. On the other, they should not unnecessarily hamper the preparation and free movement of petroleum products. They have been properly drawn not from preconceived ideas of what specifications are necessary but rather from a careful study of what the petroleum industry has accomplished in the safe distribution of its volatile products.

For some time the relation between the vapor tension of natural gasoline and the hazards involved in its shipment has been under investigation in cooperative work by the industry and the Bureau of Explosives. At present the specifications in the shipping regulations are based on tests in the well known A.P.I. bomb. It was publicly reported (1) that this method is not entirely satisfactory, first, because the deviations in the results are sometimes very large, even in the case of the same man working on the same gasoline, and, second, because the so-called "vapor tension" obtained by this method bears no simple relation to the real vapor tension of the gasoline.

Definition of Vapor Tension

THE vapor tension of a gasoline may be defined as the pressure of its vapors in a closed space when these vapors are in equilibrium with the liquid gasoline. If air or other gases are also present in the space the total pressure is equal to the sum of the pressures of the air and of the gasoline vapors.

Some confusion exists at present because there are two methods of expressing the magnitude of vapor tensions. Practically all text books and tables give tensions in absolute pressures, whereas the petroleum industry and the regulations of the Interstate Commerce Commission measure tensions in gage pressures, i. e., the excess of the vapor tension over atmospheric pressure.

Tested in the A.P.I. bomb, all gasolines with a tension below one atmosphere should give no vapor tension. As a matter of fact, due to the inherent errors in the method, even these gasolines show measurable tensions. It should be noted, however, that a method which measures the real vapor tension of the gasoline, irrespective of its magnitude, will show a negative value for the vapor tension as gage pressure where the absolute value is below one atmosphere. The following table will make this clear:

Vapor Tension of gasoline in absolute pressure	Corresponding vapor tension of the gasoline at gage pressure (1 atmosphere taken as 14.7 lbs. per sq. in.)
5 lbs. per sq. in.	9.7 lbs. per sq. in.
14.7 lbs. per sq. in.	.0 lbs. per sq. in.
25 lbs. per sq. in.	10.3 lbs. per sq. in.

Some Methods for Measuring Vapor Tension

The A.P.I. Method. The apparatus consists of a metallic bomb about 2¾ inches in diameter and 11½ inches high. Through the top is an opening into which a pressure gage may be screwed. A test involves the following steps:

(1). **Filling the bomb.** The apparatus is filled with gasoline, preferably by lowering it into the storage tank. It is allowed to come to the temperature of the tank, emptied and filled again.

(2). **Pouring out one-tenth of the gasoline.** This step, apparently simple, involves great possible errors. As the liquid is poured out, the free space formed in the bomb is partially filled by vapor from the gasoline and partially by air which rushes in past the gasoline. At the end, atmospheric pressure exists in the bomb because it is in free communication with the outside, but the relative proportion of air to gasoline vapor in the free space is more or less accidental. It will depend on the rate at which the gasoline was poured out, the way the bomb was handled, etc., or, in short, on the extent to which the free space has become saturated with gasoline vapor.

(3). **Screwing in the gage.** If the temperature remains constant, the additional pressure developed in the apparatus after the gage has been put in place (gage reading) depends on how far the free space was saturated with gasoline vapor in (2). The gasoline will finally develop practically its full vapor pressure, but the total pressure recorded will be higher than this by a variable amount depending upon the quantity of air remaining in the bomb.

(4). **Putting the bomb in a bath for 5 min. at 70° F.** This is an empirical rule designed to secure uniform conditions before venting.

(5). **Venting after 5 min.** Venting is usually accomplished by unscrewing the gage from the bomb. This apparently simple step may lead to great errors in the case of high tension gasolines, for if the gage is unscrewed slowly a perceptible quantity of the gasoline can evaporate. On the other hand if it is removed quickly the gasoline may boil and throw liquid spray from the bomb. Since it is the more volatile constituents which escape, the vapor tension of the weathered residue may

(1) Shoemaker, Nat. Petroleum News, 17, 87 (1925); Oil Gas J., 23, 90 (1925); Burrell, "The Recovery of Gasoline from Natural Gas," A.C.S. Monograph Series, Page 555,

be considerably below the real vapor tension of the original gasoline.

(6.) **Putting the bomb in a bath at 100° F and reading the pressure developed.** The pressure developed is always higher than the true vapor tension of the gasoline left in the bomb by an amount corresponding to the pressure of the residual air. Of course if extreme weathering took place during the venting even the total pressure of both gasoline and air may be less than the real vapor tension of the original gasoline.

To summarize the discussion of the A. P. I. method for measuring gasoline vapor tension—

(1.) It does not measure the true vapor tension of the gasolines. In general its results are too high due to the presence of air in the bomb.

(2.) It shows gage pressures for gasolines whose tensions are below one atmosphere and which therefore have no gage pressure of gasoline tension.

(3.) In the case of very high tension gasolines the venting step may so weather the gasoline as to show a gage pressure considerably below the true vapor tension.

The Anderson Method

AS shown above the two main errors in the A. P. I. method are caused by the variable quantity of air left in the bomb and by the weathering of the gasoline during venting.

Anderson has developed a modified form of the apparatus in which the free space of one tenth the volume of the bomb is attained, not by pouring out gasoline, but by screwing in the gage when the apparatus is full of gasoline and allowing the pressure developed to force out one tenth the gasoline through a needle valve. Only one temperature is used and venting is eliminated.

The writer ventures the following comments on this method.

(1.) It should give much more consistent results than the A. P. I. method.

(2.) Its readings should be higher than the true vapor tension because of dissolved air in the gasoline. This air will distribute itself between the free space and the liquid gasoline in a definite ratio, and the part mixed with the gasoline vapor will, of course, raise the gage pressure.[1]

(3.) Like the A. P. I. method it is not suitable for the measurement of gasolines of low vapor tension.

The Method of Introducing Liquid Gasoline Into A Closed Air Space Free From Gasoline Vapor and Measuring The Resulting Increase in Pressure

This is one of the oldest methods for measuring vapor tension. It gives, of course, the absolute vapor tension and not the gage pressure.

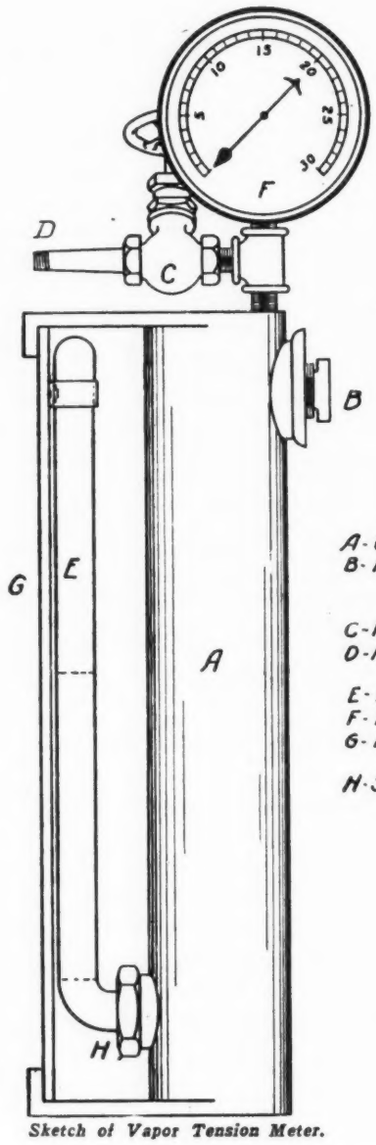
Some of the potential sources of error[2] which should be watched are—

(1.) The air space must be completely free from gasoline vapors at the start. Very small quantities of gasoline vapors give considerable pressures. The total amount necessary to give a pressure of one lb. in the A.P.I. bomb is only a fraction of a gram.

(2.) If the volume of the gasoline is small relative to the air space, then evaporation may appreciably change the composition and lower its pressure. On the other hand if the volume of gasoline is relatively great, a variable quantity of the air will be dissolved causing the pressure to be too low.

Estimation of the error due to the enclosed air by chemical analysis of the air vapor mixture

IF venting is eliminated to prevent errors due to weathering, the main error left in the A. P. I. method is caused by the trapped air. If the proportion by volume of air in the free space were known, then the true vapor tension could easily be calculated. This might be found by withdrawing a small sample of the air vapor mixture from the bomb at the end of the experiment and determining its proportion of air by chemical analysis. But the analysis of such a mixture for air is not an easy task.[1]



Sketch of Vapor Tension Meter.

The half volume method for measuring the true vapor tension[2]

THE pressure of gasoline vapor in the space not filled by liquid in the A. P. I. bomb is independent of the volume of this space. If the volume is increased more gasoline evaporates. If it is decreased, gasoline vapors condense. On the other hand the partial pressure of the air present changes in inverse proportion to the volume. The writer has proposed that a method may be based on these facts which will eliminate the error due to air from the vapor tension measurement.

In this method for measuring the vapor tension of gasoline (or of any volatile liquid) a glass gage attached to the side of the bomb is filled with the mixture of air and saturated vapors in contact with the gasoline. The gage pressure is read. The air vapor mixture is then forced to half volume by the application of pressure to the liquid and is brought to equilibrium with the gasoline by shaking. The final gage pressure is read.

The calculation of the vapor tension is very simple.

Vapor tension of Gasoline (gage Pressure) —2 (Initial gage pressure)— Final Gage pressure

Vapor Tension Meter[3]

IN order to test the practical utility of this principle in the design of apparatus for measuring the vapor tension of gasoline, a device has been constructed similar to that shown in the diagram.

The container for the gasoline is a metallic cylinder, A, 2⅜ inches in dia-

(1) Rhodes and McConnell, Ind. Eng. Chem. **15,** 1273 (1923).

(2) For a discussion of these errors see Ind. Eng. Chem., **10,** 709-725 (1918); **15,** 1075-1077 (1923).

(1) Burrell and Robertson, Ind. Eng. Chem., **7,** 112-3 1915; Anderson, Ibid **9,** 142 (1917).

(2) Ind. Eng. Chem., **17,** 1136-1137 (1925).

(3) The writer also experimented with methods for decreasing the pressure on the gasoline and increasing the free space. The chief objection seems to be that, since gasoline has to be removed from the bomb, the possibility for check determinations on the tension of the same sample is lost. On the other hand with the half volume method, one can in a few minutes repeat the test over and over on the same sample until absolutely assured that the correct value has been obtained.

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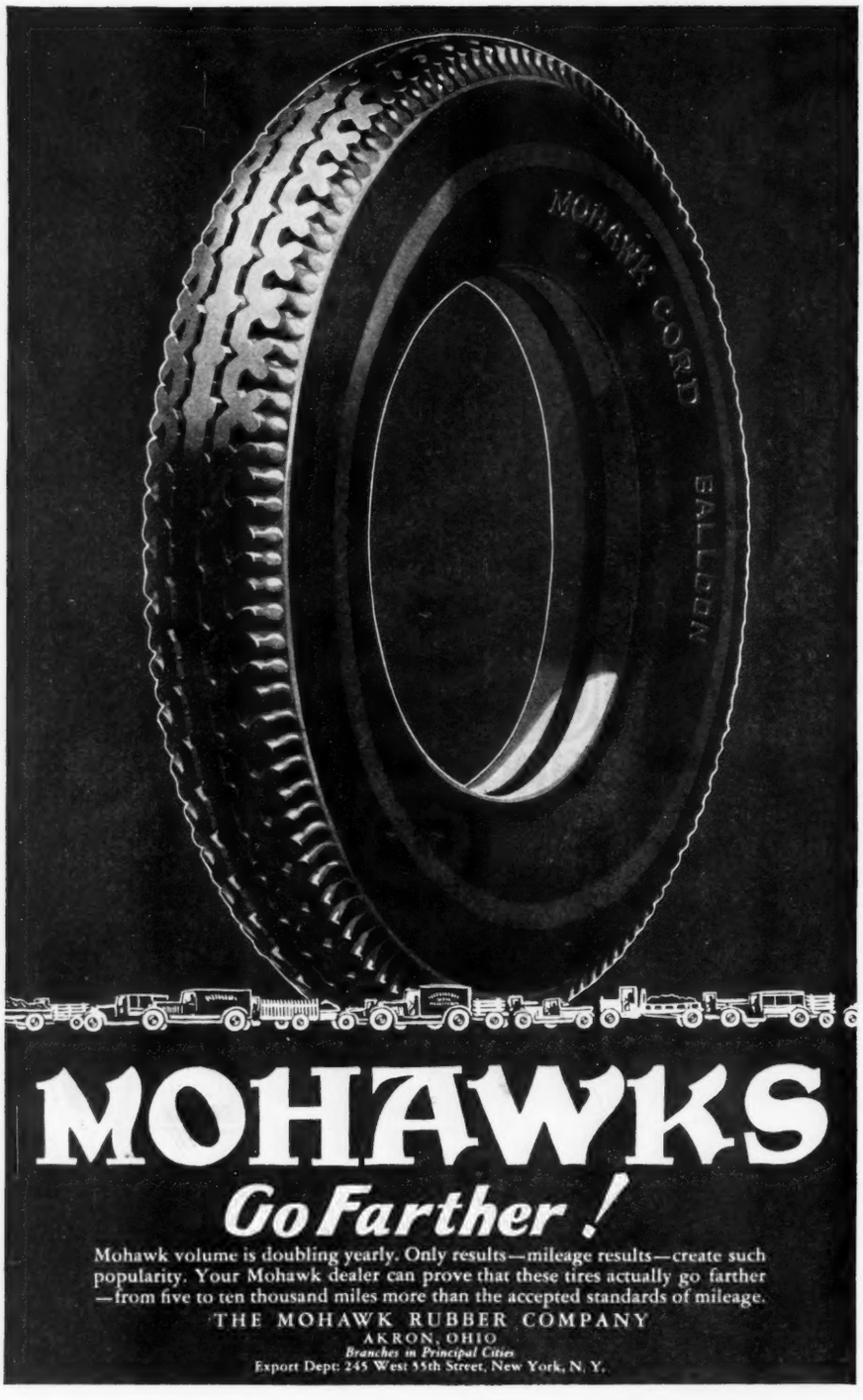
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meter and 11½ inches high. These are the approximate dimensions of the vapor pressure bomb recommended by the U. S. Bureau of Explosives. The top and bottom of the cylinder, however, are extended on one side to form a solid support for the apparatus when lying on its side. Into the bottom of the cylinder is fitted an indicator tube of glass, E, through a stuffing box, H. The indicator tube turns upward at a right-angle bend and carries two graduation marks, the lower corresponding to twice the volume of the upper. A tee, fitting into the top, carries a stopcock, C, a tire valve, D, and a pressure gage, F. Near the top a screw plug, B, fits through a bell-shaped mouth into the side of the container.

The method of operation of the apparatus will be understood from the following directions for its use:

Filling the bomb. Unscrew the gage and fittings from the apparatus, remove stopper B and lower the bomb into the gasoline tank. Fill and empty once, then raise and stand upright. Automatically liquid runs out at the mouth leaving a free space of about one tenth the volume of the bomb. Replace the gage and stopper B.

Taking the initial gage reading. Shake the bomb vigorously until the pressure reading is absolutely constant. Then by tipping, fill the gage tube with air vapor mixture to the lower graduation. Record the pressure.

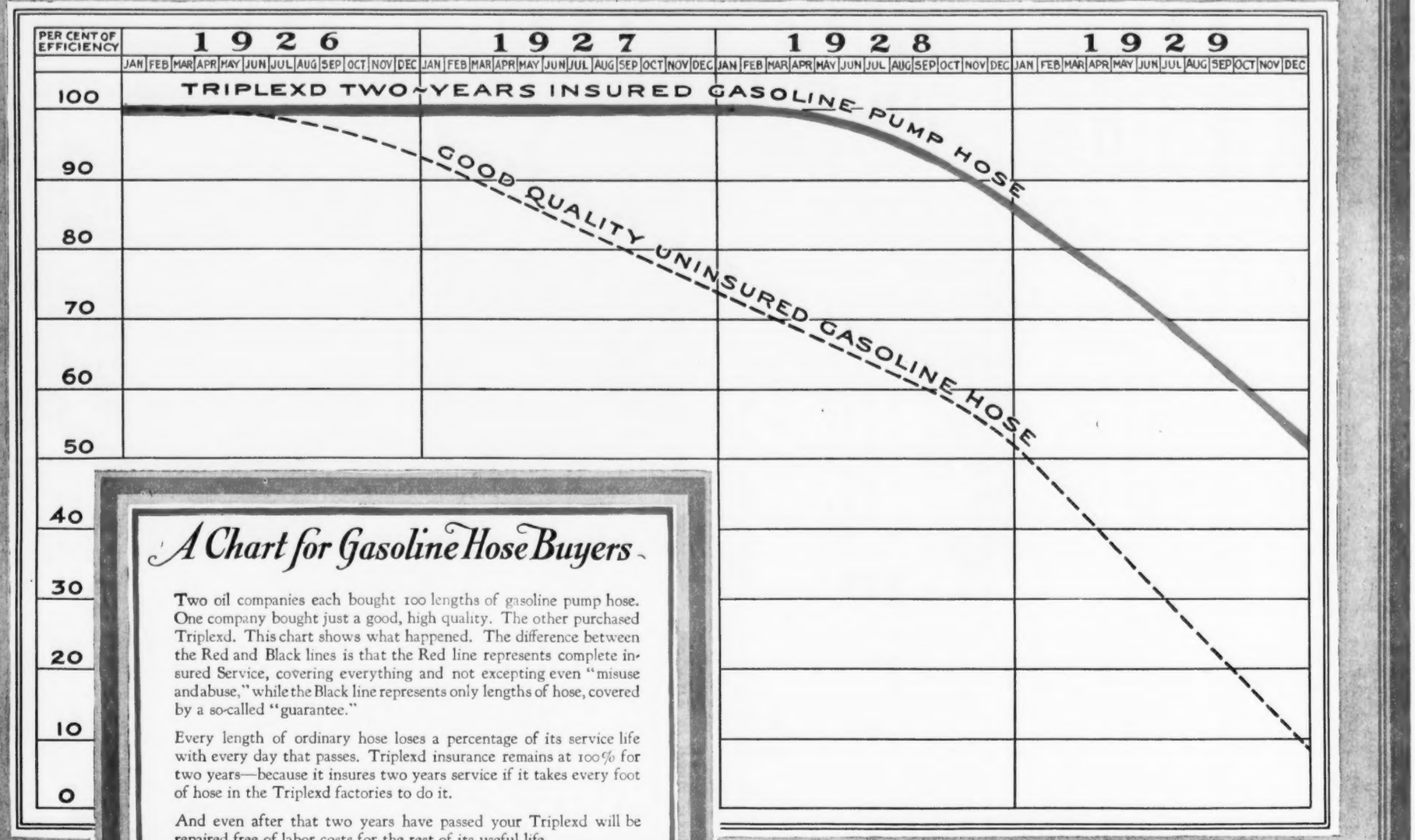
Compression to half volume. Pump air through D until the liquid rises approximately to the half volume mark in the indicator tube. Shake the bomb up and down until the pressure remains constant even after vigorous shaking, with the liquid level at the half volume mark. Record the pressure.

Vapor Tension (gage pressure)
—2 (Initial pressure)
—Pressure at half volume

Check Determinations. Tip the bomb to displace the air from the indicator tube by gasoline, then release the pressure through the needle valve for a few seconds. Now repeat the test. The result should agree with the first within 0.2 lb. If not, repeat until the results do agree. These check tests can be made in a few minutes without removing the sample from the bomb and are of great value. It will be shown below that the momentary venting does not appreciably affect the vapor tension of the gasoline.

Cleaning the bomb. The bomb does not need to be cleaned; simply pour out the gasoline and proceed to the next test.

Calibrating the bomb. To find the half volume mark, dry the bomb and fill with a heavy oil of negligible vapor tension (gas oil or absorbent oil). Tip to fill the indicator tube to the lower mark with air. Then compress the air to a pressure equal to the barometric



A Chart for Gasoline Hose Buyers

Two oil companies each bought 100 lengths of gasoline pump hose. One company bought just a good, high quality. The other purchased Triplexd. This chart shows what happened. The difference between the Red and Black lines is that the Red line represents complete insured Service, covering everything and not excepting even "misuse and abuse," while the Black line represents only lengths of hose, covered by a so-called "guarantee."

Every length of ordinary hose loses a percentage of its service life with every day that passes. Triplexd insurance remains at 100% for two years—because it insures two years service if it takes every foot of hose in the Triplexd factories to do it.

And even after that two years have passed your Triplexd will be repaired free of labor costs for the rest of its useful life.

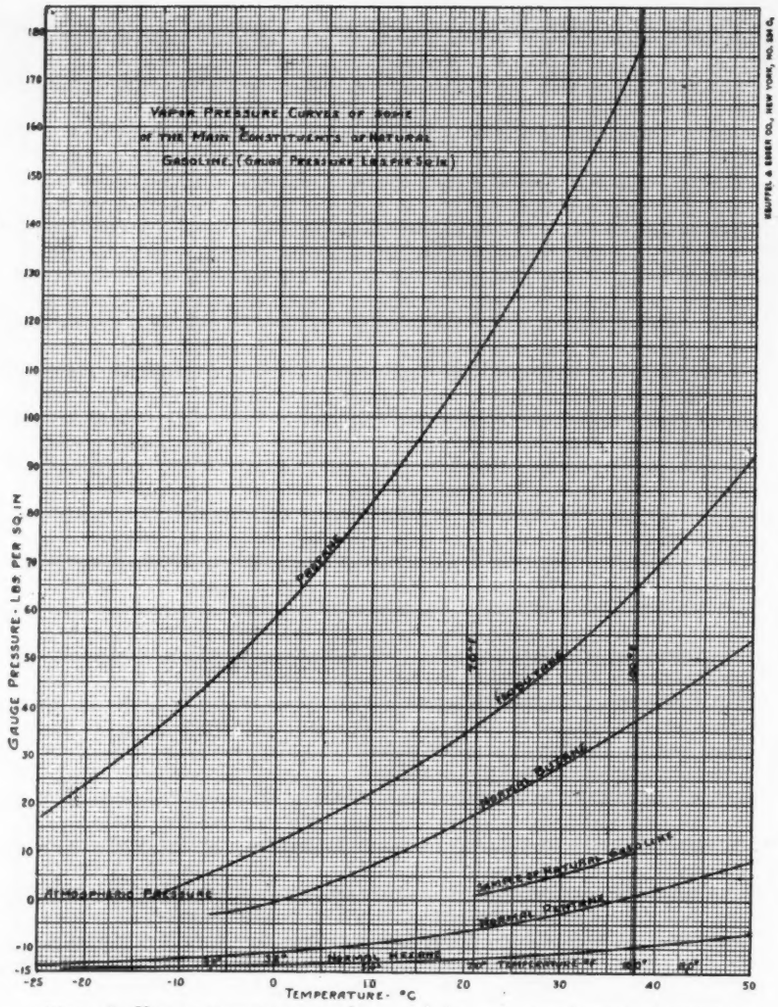

VAPOR PRESSURE CURVES OF SOME OF THE MAIN CONSTITUENTS OF NATURAL GASOLINE. (GAUGE PRESSURE LBS PER SQ IN)
GAUGE PRESSURE - LBS PER SQ IN
TEMPERATURE - °C
PROPANE
ISOBUTANE
NORMAL BUTANE
ATMOSPHERIC PRESSURE
NORMAL PENTANE
NORMAL HEXANE
70°F
100°F
KEUFFEL & ESSER CO., NEW YORK, NO. 364-C.

Figure 2—Vapor pressure curves of some of the main constitutents of natural gasoline.

reading. The oil meniscus will now be at the half volume point.

Experimental Tests On The Method.

The following tests on a typical natural gasoline show that momentary venting does not appreciably affect the magnitude of the vapor tension. This is very important as pointed out before because it permits check tests to be made on the same sample.

Vapor tension of fresh gasoline .16.5 lb.
Check test on the same sample after momentary venting .....16.7 ib.
Check test on same sample after **1 minute continuous venting** ..... 16.1 lb.

How close must the volumes in the gage tube be adjusted?

To test this point the final volume was purposely thrown off ¾ in. to see how much the vapor tension value was changed.

Vapor tension of natural gasoline with meniscus accuracy at half volume .....16.4 lb.
Vapor tension of the same gasoline from reading with meniscus ¾ in. too high at half volume .....14.4 lb.
Error in vapor tension for ¼ in. error in reading at half volume ..... 0.6 lb.

Of course the most careless worker should be able to adjust the volume closer than ¼ in. to the mark.

How constant must the temperature of the bomb and gage tube remain during the experiment?

The following tests answer this question.

Vapor tension of gasoline with both initial and half volume readings at 100° F. .....16.1 lb.
Vapor tension of the same gasoline with the initial reading at 100° F. and the final at 95° F. .....18.9 lb.
Error in vapor tension per 1° F. variation between the initial and final volume readings ..... 0.6 lb.

Does the method give the true vapor tension of the gasoline?

Tests by the writer, by the U. S. Bureau of Explosives and by the laboratories of some large petroleum companies have shown that the method measures the true vapor tensions of liquids fairly closely.

The possibility of eliminating the necessity for water baths at fixed temperatures in gasoline vapor tension measurements.

In the A.P.I. method it has been found necessary to adjust the bomb first to one fixed temperature (70° F.) and then to another (90° or 100° F.) Further no simple relation has been found between the temperature and the results given by this method on the same gasoline. Nor could any be expected for the method does not measure true vapor tension.

In figure 2 are given the vapor tensions of some of the principal constituents that may be found in natural gasolines. The curves are rather similar as the following calculations show—

Substance—Temperature coefficient of vapor tension (Average fractional increase per 1° F.) 70°—100° F.	
Propane	0.016
Isobutane	0.017
Normal butane	0.021
Sample of natural gasoline	0.020
Normal pentane	0.022
Normal hexane	0.034

It will be seen that the temperature vapor tension curve of the one sample of natural gasoline examined (from Oklahoma) has about the same coefficient as those of butane and pentane.

Experimental tests might soon show a surprising uniformity in these curves for natural gasolines and make it possible to summarize them in a simple chart. Then the vapor tension of gasolines could be measured at any convenient room temperature and the corresponding tensions at the standard temperature be read from the chart.

Summary of points regarding the half volume method for measuring vapor tension

(1). It gives the true vapor tension of the gasoline.

(2). Unlike the A.P.I. method its utility is not confined to gasolines of high vapor tension. It will measure the vapor tension of any petroleum product or of any volatile liquid.

(3). By this half volume method one or more check determinations of the vapor tension can be taken on the same sample of gasoline without removing it from the bomb. This greatly increases the accuracy of the result.

(4). A bomb has been devised for tests by this method which is very similar in dimensions to that of the Bureau of Explosives. It can therefore be used either for the standard A.P.I. test or for measuring the true vapor tension by the half volume method.

(5). The suggestion is made that the adjustment of the temperature of the bomb to one standard temperature may be unnecessary. It is probable that natural gasolines of the same vapor tension have nearly the same temperature coefficients of vapor tension. When once the curves for the relation between the temperature and the vapor tension have been experimentally determined it will be possible to measure the vapor tension of gasolines at any convenient but measured room temperature and then read from these curves the corresponding pressures at the standard temperature (100° F.)

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Many Benefits for Whole Oil Industry Possible in Uniform Accounting

By M. W. Mattison

In Charge of Tax Work and Accounting for the American Petroleum Institute, and General Chairman of the Committee on Uniform Methods of Accounting

HEREWITH is published a series of opinions and outlines of benefits to be derived from uniform accounting methods in the oil industry by members of the American Petroleum Institute committee on uniform methods of oil accounting. The committee drafted tentative forms of income account and general balance sheet with definitions of the various items in them. These were published serially in National Petroleum News during the last two months. In the May 5 issue of National Petroleum News was published a statement on the proposed method by Paul R. Jones, general auditor, Henry L. Doherty & Co., New York.—Editor

TO summarize briefly the importance and value of a uniform system of accounting for the industry, I would call attention first to the need of uniformity. At present it is extremely difficult to make accurate comparisons of published balance sheets of the different interests engaged in the oil business, and, because of this, confusion naturally results.

Of course, there will always be some variations, but the fundamental accounting principles underlying published balance sheets should be identical in all cases Accounting in the oil business is peculiar unto itself and the principal reason for this is because of the fact that the business is founded upon a natural resource which is exhausted through use and cannot be replaced, and when the reserves of oil used in the natural course of business are replaced they are generally replaced at a constantly rising cost.

Operations Liquidate Assets

PRACTICALLY all of the operations of an oil company, excepting that of transportation, result in a liquidation of assets to a greater extent than in any other line of business, save, of course, mining companies, and it is for this reason principally that accounting in the oil industry is far more difficult than in other lines of industry.

The benefits of uniformity are manifold and among the advantages which might be pointed out is the time and labor which will be saved in making the numberless reports which are derived from accounts to the various governmental bodies, and in this category will be included federal income tax returns.

Another important advantage would be the uniformity which would ensue in determining costs. The matter of determining accurate costs in the handling of oil and its by-products is probably of more importance than in any other industry because of the difficulty encountered in accurately determining costs.

Estimating Depletion

TO illustrate: A company engaged in producing oil, in order to determine accurately the profit derived therefrom, must determine the cost of its oil in place, which shows in the balance sheet in the form of depletion. This is a matter of estimate in all cases for the reason that the quantity of reserves are impossible of exact ascertainment. However, uniformity in determining these matters and uniformity in including them in accounts will be of distinct advantage.

Another great advantage which might be well emphasized is the fact that correct accounting will be conservative accounting, and it will preclude over-statements of assets in companies seeking credit through the sale of its securities in the open market.

Had there been uniformity in oil accounts throughout the country, the time and labor necessary to respond to the requests of the La Follette investigation would have been minimized.

Uniform Accounting Method Fulfills Urgent Need

By H. G. Humphreys

General Auditor, Skelly Oil Co., Tulsa

IN a review of a book on accounting, published in the March, 1924, issue of the Journal of Accountancy, Carl H. Nau, a past president of the American Institute of Accountants, expressed an idea which is worth while bearing in mind when we consider the subject of accounting, which expression ran thus:

"I especially like brushing aside of all metaphysical numby-cum-spludge about algebraic equation and personification theories of double entry and other alleged scientific make-believe and placing the subject upon a purely empirical basis where it belongs."

The old time oil producer considered all outgo on a given property, whether classified on the books as capital or as operating expense, to be investment and all respective income as return on investment until the property "paid out"; the subsequent favorable balance representing excess of income over outgo was regarded by him as being "true operating earnings."

Equitable Tax Basis

THERE are many able minds that are now, and have been, engaged in the petroleum industry who hold to the opinion that "true operating earnings," as described, less losses on abandoned properties and administration expenses, is the only equitable basis upon which income tax can be imposed against an oil producer. It is a simple and a fair method but without the shades of "numby-cum-spludge."

Many an oil producer has actually paid tax on income of a property, less lifting expenses and a statutory allowance for a return of capital according to an interpolated production decline curve, which property did not ultimately "pay-out." Something tangible should be done in order that the truth be known and since accounts of a company represent its economic history, uniform presentation of these accounts for executive guidance would fill an urgent need.

The American Petroleum Institute committee on uniform accounting has completed a tentative form of balance sheet which is probably broad enough to embrace every asset and liability of a full-fledged oil company, it also has provisions for such adjustments and eliminations as are necessary in connection with consolidations. It has classification a-plenty for the big fellow while

H. G. Humphreys

General auditor, Skelly Oil Co., Tulsa, member of American Petroleum Institute committee on uniform methods of oil accounting.

the little fellow will find therein appropriate pegs whereon he may hang what he has to exhibit. Naturally, this balance sheet will be somewhat modified during the coming year but it is hoped that it will be ready in its final form so that it may be officially adopted at the seventh meeting of the American Petroleum Institute to be held at Tulsa next year. The committee, in all probability, will also be in position to submit for adoption at the same meeting a classification of the income account supported by departmental operating statements.

Simplification of Methods

WITHOUT question, the adoption of a sound, uniform system of accounting by the petroleum industry would result in simplification of methods and records, with the consequence that a general understanding of the various phases of capital and return thereon would be available to all interested parties.

The proposed classification in its entirety will admit of the accounting concern carrying its accounts by departments, subdivided by units, so as to produce available information, e. g.:

Do all oil executives receive statements currently, showing the status of each investment and the net earnings thereon, together with an apportionment of general expenses so as to give departmental net income? If not, why not? All of them surely need the information and surely the best way to present it is in a form that will be uniformly used by the industry generally.

Department .....
Period .....

Accounts	Total	Lease or Unit	Lease or Unit, etc.
Investment	x	x	x
Depletion and—or Depreciation	x	x	x
Net investment	x	x	x
Gross Earnings	x	x	x
Operating Expense	x	x	x
Operating Earnings	x	x	x
Depletion and—or Depreciation	x	x	x
Net Earnings	x	x	x
Proportion Administrative, General and Interest Expense	x	.	.
Departmental Net Income	x	.	.

It may be well to mention that having financial statements prepared regularly and consistently in the uniform style suggested, it is surprising how closely the executive, benefiting by his retrospective review, can forecast the prospective results, having regard, however, to possible fluctuation in prices which would affect earnings.

Uniform Accounts Picture Company's Condition

G. F. Smith

Treasurer of Continental Oil Co., Denver, member of the American Petroleum Institute committee on uniform methods of oil accounting.

THE uniform general balance sheet, as suggested by the special committee apointed by the American Petroleum Institute, if generally adopted by the companies actively engaged in the oil industry, should prove to be beneficial to the holders of oil stocks, to bankers, and to the investing public, as such a balance sheet will not only present a well arranged picture of the assets and liabilities of a company, but will also present an opportunity to make comparisons as between companies. The same may be said of the classification of income and profit and loss accounts.

The detailed classification of items under the various major accounts appearing on the balance sheet should also be helpful to a great many companies in preparing their balance sheets and income statements, thus bringing about the uniformity desired.

It is to be hoped that the work of the committee will receive favorable consideration by all the companies in the industry.

Calif. Refinery Output Increases in March

SAN FRANCISCO, May 8.—Gasoline production in March at California refineries totaled 168,361,233 gallons, an increase of 29,688,210 gallons, or 21.41 per cent over February output, which increase is due in part to the greater number of days in March. Compared with March production a year ago, an increase of 38,107,809 gallons, or 29.26 per cent is noted. Stocks increased 19,332,244 gallons to 431,343,747 gallons on Mar. 31. Stocks on Mar. 31, 1925 were 473,582,888 gallons.

A daily average of 530,404 barrels of crude oil were run to stills by 53 refineries reporting to the Bureau of Mines. These plants were operating at 75.75 per cent of their capacity during March.

Production of natural-gas gasoline during March by 145 natural gasoline plants was 30,546,613 gallons from 22,134,061 thousand cubic feet of gas treated. Stocks of natural gasoline on Mar. 31 were 3,531,906 gallons, a decrease of 200,256 gallons under February.

Kerosene output totaled 27,743,056 gallons, an increase of 6,102,146 gallons over February. Stocks decreased 1,153,883 gallons and at the end of March amounted to 81,179,099 gallons.

Production of gas oil, fuel oil and residuum totaled 485,715,854 gallons, an increase of 47,039,486 gallons over February output. Stocks of heavy crude, including all grades of fuel oil, amounted to 88,549,113 barrels on Mar. 31, which is a gain of 1,788,611 barrels over February stocks.

Output of lubricants during March was 9,430,788 gallons, an increase of 1,867,941 gallons over February. Stocks decreased 2,915,704 gallons to 34,172,788 gallons.

CLEVELAND, O.—Shale gas wells at Northfield, Summit county, O., are performing satisfactorily and the field may assume considerable proportion, says W. J. Dempsey, who has drilled a number of them. There have been 12 producers completed at Northfield within the past six months.

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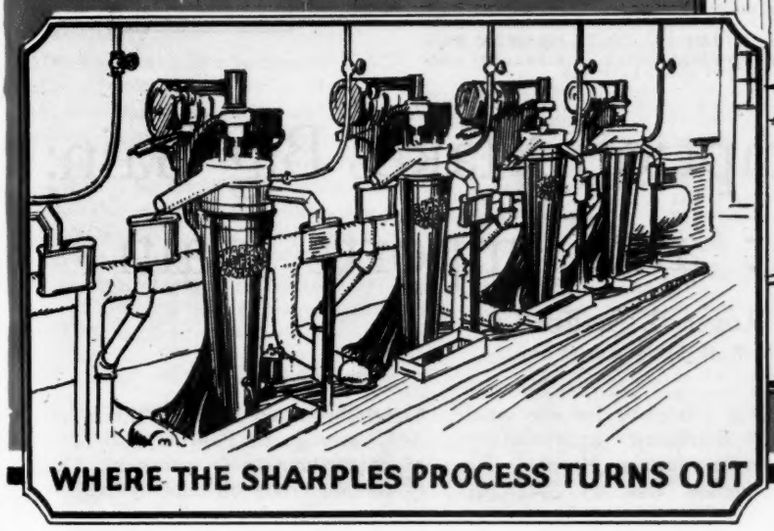

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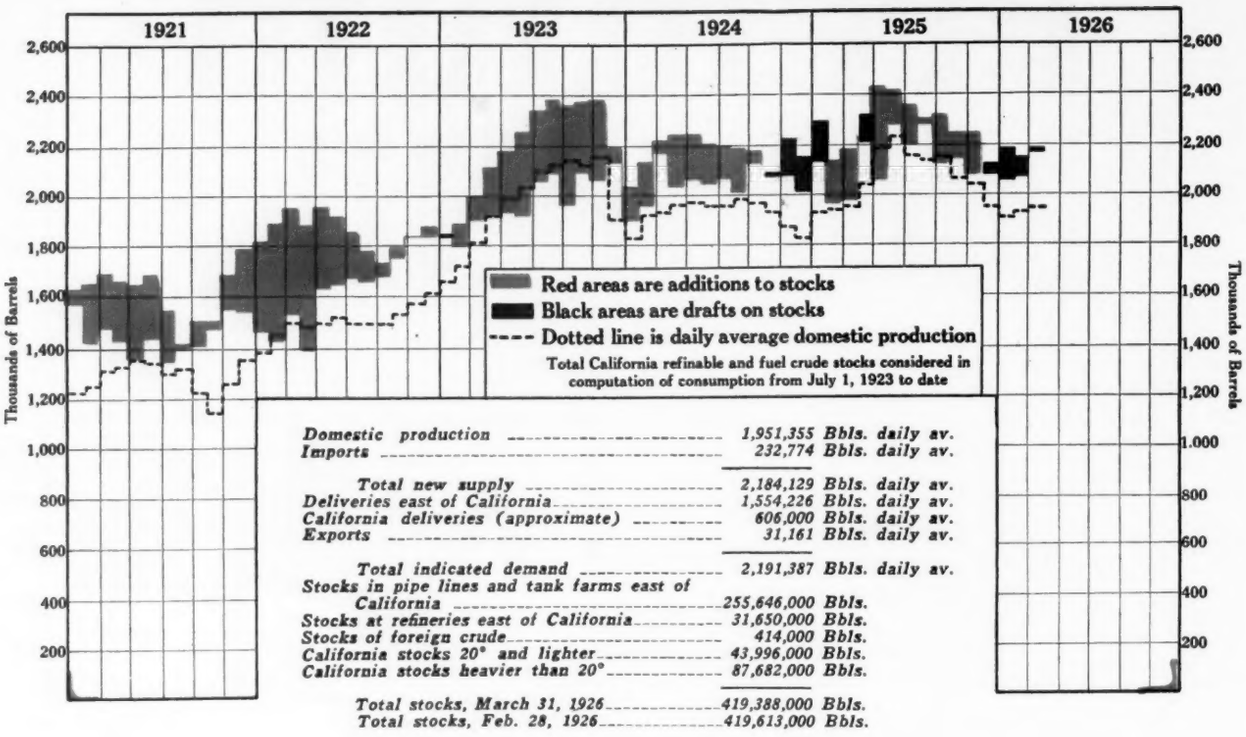
Barometer of the Crude Oil Situation



Domestic production	*1,951,355 Bbls. daily av.*
Imports	*232,774 Bbls. daily av.*
Total new supply	*2,184,129 Bbls. daily av.*
Deliveries east of California	*1,554,226 Bbls. daily av.*
California deliveries (approximate)	*606,000 Bbls. daily av.*
Exports	*31,161 Bbls. daily av.*
Total indicated demand	*2,191,387 Bbls. daily av.*
Stocks in pipe lines and tank farms east of California	*255,646,000 Bbls.*
Stocks at refineries east of California	*31,650,000 Bbls.*
Stocks of foreign crude	*414,000 Bbls.*
California stocks 20° and lighter	*43,996,000 Bbls.*
California stocks heavier than 20°	*87,682,000 Bbls.*
Total stocks, March 31, 1926	*419,388,000 Bbls.*
Total stocks, Feb. 28, 1926	*419,613,000 Bbls.*

Gasoline Consumption Makes Big Gain; Crude Output and Imports Gain

By Roger B. Stafford
N. P. N. Staff Writer

CLEVELAND, May 8

GASOLINE consumption in the United States in the first quarter of this year was 23.73 per cent larger than in the first quarter of 1925, the Bureau of Mines petroleum statistics for March reveal. Stocks of gasoline on March 31 were 77,677,000 gallons larger than on Feb. 28 but were 64,000,000 gallons short of the two billion gallon mark which had been generally predicted by the most conservative, or perhaps pessimistic, observers within the oil industry.

Stocks of kerosene turned upward in March because of increased output. Both domestic consumption and exports of kerosene were larger in March than in February.

Lubricating oil stocks declined because of a large increase in domestic demand, the largest on record, when daily average production was slightly lower than in February. Gas and fuel oil stocks east of California decreased 49,000,000 gallons. Gas and fuel oil exports slumped 35,000,000 gallons; imports were down only 27,000,000 gallons, and daily average production was 500,000 gallons less than the February average.

STOCKS of crude oil for the whole country decreased approximately 225,000 barrels during March. Domestic production was up 2641 barrels, daily average to 1,951,355 barrels. Heavy declines in Arkansas, California, Gulf Coastal Texas and Salt Creek were overcome by increases in Oklahoma, Montana and north Louisiana.

Imports of crude oil were the largest in many months. This was due to increasing receipts of Venezuelan crude. Imports of crude oil in March averaged 232,774 barrels daily, of which 63,355 barrels daily came from sources other than Mexico. This volume of oil from other than Mexican fields, sets a new record in the petroleum history of the United States. Since receipts from countries other than Mexico, chiefly Venezuela, became heavier last fall, daily average imports from them by months have been:

November	43,066
December	34,484
January	38,452
February	30,714
March	63,355

Daily average imports from Mexico in March amounted to 169,419 barrels, compared with 101,036 barrels daily average in February, an increase of approximately 68 per cent. Stocks of foreign crude oil held by refiners on both the Atlantic and Gulf coasts increased 1,124,000 barrels in March. Refiners' stocks of domestic crude oil were increased 92,000 barrels. East of California a decline of stocks of light crude oil of more than 2,000,000 barrels was almost offset by an increase in stocks of heavy crude.

For the quarter ended March 31 crude oil production in the United States totaled 174,726,000 barrels, compared with 173,997,000 barrels in the first quarter of 1925. This was an increase of 0.4 per cent this year. In the first quarter of 1926 indicated deliveries of crude amounted to 182,941,000 barrels, a gain of 4.8 per cent over deliveries in the corresponding time of 1925.

Gasoline Statistically Strong

GASOLINE is statistically strong. Although stocks on March 31 were the largest in the history of the industry they represented only 65.7 days' supply at the March rate of demand—domestic shipments plus exports. The stocks on March 31, 1925, represented

Table No. 1—Production, Imports, Exports and Deliveries of Crude (Barrels)

Fields	Mar. Daily Average Production	Feb. Daily Average Production	Jan.-Mar. Production 1926	Jan.-Mar. Production 1925	†Mar. Daily Average Deliveries	*†Feb. Daily Average Deliveries	Jan.-Mar. 1926 Total Deliveries	Jan.-Mar. 1925 Total Deliveries
Appalachian	76,420	75,643	6,655,000	6,587,000	79,322	75,179	6,692,000	6,592,000
Lima-Indiana	5,774	5,643	494,000	514,000	6,516	6,786	583,000	584,000
Illinois-S. W. Indiana	25,129	23,393	2,123,000	2,152,000	10,065	9,321	1,237,000	2,086,000
Mid-Continent	1,042,104	1,034,286	93,064,000	95,941,000	1,104,065	1,138,893	101,783,000	100,805,000
Gulf Coast	85,903	92,572	7,989,000	6,515,000	93,806	125,964	9,991,000	7,198,000
Rocky Mountain	108,742	104,178	9,341,000	8,049,000	94,258	92,857	8,458,000	7,764,000
California	607,283	612,999	55,060,000	54,239,000	606,000	618,321	54,217,000	49,417,000
Total Domestic	1,951,355	1,948,714	174,726,000	173,997,000	†1,994,032	†2,067,321	182,961,000	174,446,000
Imports	232,774	131,750	15,593,000	18,980,000	.....	.....	.....	.....
Deliveries of Foreign Crude	.....	.....	.....	.....	236,548	128,393	15,585,000	19,270,000
Exports	.....	.....	.....	.....	31,161	37,464	3,198,000	3,328,000
Total New Supply	2,184,129	2,080,464	190,319,000	192,977,000	.....	.....	.....	.....

†Includes exports. *Revised.

80 days' supply at the March, 1925, rate of demand, and stocks of March 31, 1924, represented 105 days' supply.

Stocks on March 31, 1926, were 10.8 per cent larger than a year previous, production was only 12.4 per cent larger than in March 1925, but domestic shipments were 24.7 per cent larger.

Imports and exports of gasoline were larger increased, the former approximately 7,000,000 gallons and the latter 10,000,000 but the excess of exports over imports was insufficient to have more than a trivial bearing on the domestic situation.

Stocks of gasoline increased 77,677,000 gallons in March while in March, 1925, the additions amounted to 123,725,000 gallons. Compared with February, stocks of gasoline increased in every refining district. The Oklahoma-Kansas district made the smallest accumulation, less than 1,000,000 gallons. The largest addition was in the Indiana-Illinois district where stocks increased 19,000,000 gallons. California was a close second with 18,000,000-gallon gain.

Total Motor Fuel Output

THE Bureau of Mines estimates the total output of motor fuel at 1,007,900,000 gallons, a daily average of 32,500,000 gallons, compared with 32,200,000 gallons in February. This estimate takes into consideration the natural gasoline blended at gasoline plants and motor benzol. A comparison of the bureau's total motor fuel output follows:

Gasoline produced at refineries	100,000,000	969,5000,000
Natural gasoline produced at plants	100,000,000	113,100,000
Benzol production*	7,000,000	7,500,000
Less natural gasoline blended at refineries	58,000,000	71,200,000
Less natural gasoline run through refinery pipe lines	† 9,800,000	11,000,000
Total United States	902,700,000	1,007,900,000
Daily average	32,200,000	32,500,000

*Estimated with production of by-product ovens as basis. †Revised.

Production of natural gasoline reached a new high total in March, 113,147,000 gallons, a daily average of 3,650,000 gallons. New high monthly totals were made in the Mid-Continent and California, an increase in the Rocky Mountain territory, but production in the Appalachian region fell off. Stocks of raw natural gasoline on March 31 were 20,644,000 gallons, an increase of 3,070,000 or 17 per cent over Feb. 28 stocks.

Cracking Increased in March

CRACKING was increased in March over February, 30 per cent of the gasoline produced being by the modern method. Straight run production was 63 per cent, 1 point less than the proportion

Table No. 2—Daily Average Production by States

(Amount in Barrels)

States	Mar.	Feb.
Arkansas	164,097	172,321
California	607,283	612,999
Colorado	6,226	6,750
Illinois	23,548	21,429
Indiana, southwest	1,581	1,964
Northwest	355	393
Kansas	104,839	104,607
Kentucky	17,119	17,350
Louisiana, Gulf Coast	11,226	10,357
Rest of State	48,742	43,822
Montana	24,580	16,571
New Mexico	4,097	4,036
New York	5,097	5,107
Ohio, central-eastern	15,290	14,571
Northwestern	5,419	5,250
Oklahoma, Osage	66,709	67,607
Rest of State	398,007	389,215
Pennsylvania	22,710	22,643
Tennessee	107	150
Texas, Gulf Coast	74,677	82,215
Rest of State	259,710	256,714
West Virginia	16,097	15,822
Wyoming, Salt Creek	53,323	57,000
Rest of State	20,519	19,821
Total U. S.	1,951,355	1,948,714
Classification by Gravity		
24° A. P. I. grav. and lighter	1,422,097	1,412,857
Heavier than 24°	529,258	535,857

Table No. 3—Stocks of Crude Oil

(Domestic unless otherwise specified, Amounts in Thousands of Barrels)

Districts	Mar.31 1926	*Feb.28 1926	Mar.31 1925
At Refineries			
East Coast:			
Domestic	6,602	6,397	8,081
Foreign	3,046	2,384	2,665
Appalachian	1,616	1,579	1,190
Indiana, Illinois, etc.	1,571	1,482	1,479
Oklahoma, Kansas	3,558	3,607	4,939
Texas Gulf Coast:			
Domestic	5,975	6,176	4,374
Foreign	266	144	519
Texas, rest of state	740	1,114	1,133
Louisiana Gulf Coast:			
Domestic	4,217	3,953	4,812
Foreign	1,871	1,531	1,930
Louisiana-Arkansas	690	546	413
Rocky Mountain	1,498	1,521	1,078
U. S. east of Calif.	31,650	30,434	32,613
At Tank Farms, in Pipe Lines and Elsewhere than Refineries			
Appalachian	6,653	6,755	7,038
Kentucky	1,802	1,790	2,243
Lima-Indiana	882	905	1,151
Illinois-S. W. Indiana	11,468	11,001	10,936
Okla.-Kans.-Texas except Gulf	144,638	146,475	172,937
N. Louisiana-Arkansas	43,079	43,163	32,757
Gulf Coast	17,261	17,506	19,517
Rocky Mountain	29,863	29,414	28,957
Foreign, Atlantic ports	102	124	220
Gulf ports	312	408	179
Total east of Calif.	287,710	287,975	308,548
California:			
20° and lighter	43,996	44,877	43,422
Heavier than 20°	87,682	86,761	60,299
Grand Total	419,388	419,613	412,269
CLASSIFICATION BY GRAVITY			
Crude Elsewhere than at Refineries East of California			
24° and lighter	227,928	229,984	.....
Heavier than 24°:			
Domestic	59,368	57,459	.....
Foreign	414	532	399

*Revised.

Table No. 4—Gasoline Situation in a Nutshell. (Gallons)

	Production	Imports	Exports	Domestic Consumption	Stocks
July 1925	966,908,000	16,845,000	105,107,000	963,072,000	1,610,790,000
August	972,689,000	13,180,000	124,042,000	931,901,000	1,540,716,000
September	906,109,000	7,633,000	91,441,000	848,867,000	1,514,150,000
October	944,433,000	9,009,000	106,570,000	831,774,000	1,529,248,000
November	922,058,000	15,684,000	118,999,000	758,111,000	1,589,880,000
December	934,549,000	13,448,000	129,850,000	755,822,000	1,648,328,000
1925 Total	10,849,127,000	160,137,000	1,330,314,000	9,325,094,000	.....
January 1926	948,904,000	16,118,000	143,969,000	720,358,000	1,749,023,000
February	863,525,000	17,133,000	120,304,000	650,718,000	1,858,659,000
March	969,543,000	21,701,000	133,966,000	779,571,000	1,936,336,000
March 1925	862,574,000	14,543,000	123,756,000	625,053,000	1,747,199,000

Table No. 5—Gasoline Production by Various Methods in March, 1926

(Gallons)

	Straight run	%	Cracked	%	Natural-gas Gasoline	%	Total
East Coast	77,182,000	50	56,528,000	37	20,370,000	13	154,080,000
Appalachian	27,483,000	69	11,184,000	28	1,050,000	3	39,717,000
Indiana and Ill.	74,282,000	60	46,410,000	37	3,822,000	3	124,514,000
Oklahoma and Kans.	104,960,000	66	45,182,000	28	8,778,000	6	158,920,000
Texas	109,765,000	54	77,945,000	39	14,406,000	7	202,116,000
Louisiana and Ark.	38,333,000	62	20,887,000	34	2,436,000	4	61,656,000
Rocky Mountain	26,673,000	48	25,437,000	46	3,318,000	6	55,428,000
California	155,992,000	90	110,000	..	17,014,000	10	173,112,000
U. S. Total	614,670,000	63	283,683,000	30	71,190,000	7	969,543,000
U. S. Total Feb. '26	553,051,000	64	252,472,000	29	58,002,000	7	863,525,000
Texas and Louisiana Gulf Coasts*	98,178,000	48	92,858,000	46	13,146,000	6	204,180,000

* Included above under Texas, Louisiana and Arkansas.

of straight run gasoline made in February, but the percentage of natural gasoline used at refineries was constant at 7.

Charges of oils of all descriptions to stills averaged 2,176,500 barrels daily in March a gain of 0.3 per cent over February. Greater operating efficiency was shown in March, the recovery of gasoline being 35.2 per cent compared with 34 per cent in February. In January the refinery was 37 per cent of the crude charged to stills. This computation assumes that the full amount of natural gasoline to stills is recovered with the gasoline distilled from the crude.

Kerosene Stocks Higher

KEROSENE production rose from 7,071,000 gallons daily average in February to 7,432,000 gallons average in March. The biggest increase in kerosene production was in Texas. Domestic demand, contrary to the way the kerosene market acted in March and on through April, was less in March than in February. In March domestic shipments averaged 4,502,100 gallons daily while in February the daily average was 4,692,750 gallons. Exports in February averaged 2,366,178 gallons daily while in March they were 2,417,742 gallons. Stocks increased 5,903,000 gallons during March to 293,907,000 gallons at the end of the month.

Stocks of lubricating oils decreased almost 12,000,000 gallons to 320,883,000 gallons on March 31. Production slumped in March being 3,554,258 gallons, compared with 3,639,035 gallons in February, daily average, and exports were less but domestic demand jumped from a total of 53,484,000 gallons in February to 90,565,000 gallons in March. The March domestic demand is the largest of any month in the eight years which Bureau of Mines statistics cover.

Gas and Fuel Oils

Production of gas and fuel oil in March was at a lower rate than in February. Both exports and imports fell off and stocks east of California were drawn on almost 50,000,000 gallons. In California fuel oil stocks are reported with heavy crude oil. East of California fuel and gas oil stocks totaled 851,234,000 gallons on March 31.

Production of wax was only slightly higher in March than in February, the difference amounting to 10 tons a day. Production was still in excess of demand and an increase in domestic demand was offset by a decline in export shipments. Stocks advanced more than 6,000,000 pounds.

Shipments of crude oil through the Panama canal from the Pacific to the Atlantic and Gulf coasts were fewer in March than in February but shipments of products were larger, gasoline amounting to 750,000 barrels compared with 333,000 barrels in the preceding month. Shipments through the canal to eastern

Table No. 6—March Natural Gasoline Output, Demand and Stocks

(Gallons)

Regions	Natural Gasoline: Production (net)*	Natural Gasoline: Stocks end of month	Blended Motor Fuel: Natural gasoline used in blends	Blended Motor Fuel: Naphtha or other oils used in blends	Blended Motor Fuel: Stocks end of month
Appalachian	10,200,000	3,824,000	282,000	479,000	423,000
Indiana, Illinois, etc	1,800,000	315,000	73,000	7,000	22,000
Oklahoma, Kansas, etc	41,900,000	10,907,000	2,801,000	4,920,000	1,879,000
Texas	19,100,000	3,798,000	336,000	621,000	253,000
Louisiana and Arkansas	6,200,000	1,079,000	28,000	.....	1,000
Rocky Mountain	3,400,000	377,000	79,000	159,000	298,000
Total East of Calif.	82,600,000	19,760,000	3,599,000	6,186,000	2,876,000
California	30,547,000	884,000	Not Available		10,000
TOTAL UNITED STATES	113,147,000	20,644,000	.....	.....	2,886,000
Daily average	3,650,000	.....	.....	.....	.....

*1 per cent estimated.

Table No. 7—Supply, Demand and Stocks of Heavier Products

	Production	Imports*	Exports*	Domestic Demand	Stocks end of Period
KEROSENE (Gals.)					
January, 1926	214,761,000	15,000	78,793,000	147,555,000	287,618,000
February	197,992,000	34,000	66,253,000	131,397,000	237,994,000
March	230,378,000	50,000	74,950,000	149,565,000	293,907,000
March, 1925	219,908,000	41,000	81,866,000	117,395,000	456,064,000
LUBRICANTS (Gals.)					
January, 1926	111,255,000	90,000	30,541,000	69,168,000	316,839,000
February	101,893,000	56,000	33,128,000	53,484,000	332,176,000
March	110,182,000	165,000	31,075,000	90,565,000	320,883,000
March, 1925	118,494,000	74,000	37,658,000	67,652,000	299,689,000
WAX (Lbs.)					
January, 1926	52,630,000	631,000	29,051,000	17,828,000	122,773,000
February	49,922,000	668,000	28,709,000	20,690,000	123,964,000
March	55,329,000	456,000	20,005,000	24,403,000	130,341,000
March, 1925	53,642,000	425,000	29,012,000	19,304,000	95,077,000
GAS AND FUEL OILS (Gals.)					
January	1,231,400,000	36,242,000	151,696,000	.....	†977,178,000
February	1,136,823,000	66,573,000	133,997,000	.....	†900,670,000
March	1,244,967,000	39,786,000	98,312,000	.....	†851,234,000
March, 1925	1,203,906,000	55,320,000	132,571,000	.....	†801,757,000

*Except for wax include shipments to Alaska, Hawaii and Porto Rico.
†East of California only.

Table No. 8—Runs to Stills in U. S. During March

(Barrels)

Districts	Crude Oils: Domestic	Crude Oils: Foregin	Unfinished Oils	Natural gasoline	Total Oils run to Stills	Daily Av. Runs in March	Daily Av. Runs in February
East Coast	7,830,000	2,422,000	903,000	485,000	11,640,000	369,032	360,036
Appalachian	2,223,000	.....	67,000	25,000	2,315,000	74,677	78,428
Ind., Ill., etc	5,556,000	.....	163,000	91,000	5,810,000	187,419	192,964
Okla., Kans., etc	7,268,000	.....	296,000	209,000	7,773,000	250,742	256,857
Texas	11,848,000	513,000	402,000	343,000	13,106,000	422,774	434,674
Louisiana and Ark	5,116,000	933,000	212,000	58,000	6,319,000	203,839	200,357
Rocky Mountain	2,341,000	.....	629,000	79,000	3,049,000	98,355	96,250
California	16,443,000	.....	613,000*	405,000	17,461,000	563,228	549,821
U. S. Total	58,625,000	3,868,000	3,285,000	1,695,000	67,473,000	2,176,500	2,169,400
Daily av., Mar., 1926	1,891,000	124,800	106,000	54,700	2,176,500	.....	.....
Daily av., Feb., 1926	1,897,300	113,100	109,700	49,300	2,169,400	.....	.....
Texas Gulf Coast	9,030,000	513,000	364,000	312,000	10,219,000	329,645	342,500
La. Gulf Coast	3,574,000	933,000	144,000	1,000	4,652,000	150,064	147,357

Table No. 9—Output and Losses at Refineries During March, 1926

District	Gasoline (Gals.)	Kerosene (Gals.)	Gas and Fuel Oils (Gals.)	Lubricants (Gals.)	Wax (Lbs.)	Coke (Tons)	Asphalt (Tons)	Other finished products (Gals.)	Unfinished products (Gals.)	Losses (Bbls.)
East Coast	154,080,000	46,205,000	205,365,000	33,810,000	20,509,000	15,883	88,118	2,776,000	630,000	462,000
Appalachian	39,717,000	13,664,000	19,477,000	15,617,000	7,509,000	1,688	.....	1,205,000	757,000	125,000
Ind., Ill., etc	124,514,000	16,353,000	66,141,000	11,334,000	6,197,000	20,305	16,754	4,965,000	1,672,000	222,000
Okla., Kans., etc	158,920,000	29,475,000	108,899,000	9,539,000	4,793,000	10,274	630	1,493,000	2,507,000	297,000
Texas	202,116,000	64,780,000	208,233,000	26,641,000	4,595,000	12,327	24,279	365,000	15,332,000	580,000
Louisiana and Ark	61,656,000	26,512,000	119,288,000	1,185,000	7,292,000	12,619	35,387	5,777,000	34,487,000	101,000
Rocky Mountain	55,428,000	5,646,000	31,848,000	2,625,000	4,434,000	7,593	1,472	40,000	26,632,000	66,000
California	173,112,000	27,743,000	485,716,000	9,431,000	.....	.....	43,956	8,487,000	10,212,000*	206,000
U. S. Total	969,543,000	230,378,000	1,244,967,000	110,182,000	55,329,000	80,689	210,596	25,108,000	92,229,000	2,059,000
Daily av. Mar., 1926	31,276,000	7,432,000	40,180,000	3,554,000	1,785,000	2,603	6,793	810,000	2,975,000	66,400
Daily av. Feb., 1926	30,840,000	7,071,000	40,601,000	3,639,000	1,783,000	2,289	5,445	722,000	3,511,000	63,100
Texas Gulf Coast	156,105,000	56,004,000	158,192,000	25,767,000	4,359,000	10,285	24,279	195,000	3,907,000	497,000
La. Gulf Coast	48,075,000	24,410,000	72,243,000	1,132,000	7,292,000	12,239	34,087	5,334,000	30,260,000	50,022

*Includes 130,000 barrels net tops re-run.

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Of course your line of business is peculiar. It must be. It is obvious that there is no line that has not problems all its own—and plenty of them.

Recognizing a problem as a problem is the first step in solving it. Getting all the facts and getting them clearly in mind is the next. In both of these your A. B. P. papers can be of great value if you will but make use of them.

They will do more than report situations and last-minute developments. They will do more than supply accurate facts. They will, through their editors, present the viewpoint of men seasoned by long experience in the trade, men able to offer constructive suggestions and constructive criticisms.

The advertising pages of an A. B. P. member paper are well worth close and constant study. They, too, are full of suggestions for economy. And publishers of member papers of the A. B. P. are living up to their pledge "to decline any advertisement which has a tendency to mislead or which does not conform to business integrity."

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The NATIONAL PETROLEUM NEWS is a member of the A. B. P.

U. S. ports in the first quarter of 1926 and 1925 compare (amounts in barrels).

	1926	1925
Crude oil	3,423,000	4,499,000
Fuel oil	1,193,000	64,000
Gas oil	872,000	88,000
Gasoline	1,980,000	1,725,000
Lubricants	138,000	133,000
Tops	162,000	632,000

The March report was from 323 refineries operating at 78 per cent of their rated capacity, 2,577,000 barrels a day.

Table No. 11—Exports of Crude and Refined Oils in March

		Month of March 1925	Month of March 1926	9 Months Ended March 1925	9 Months Ended March 1926
Crude	Gallons	43,570,302	43,497,580	480,786,657	410,221,436
	Value	$ 1,715,731	$ 1,829,191	$ 17,503,642	$18,401,710
Gasoline, naphtha, other light ends	Gallons	121,494,195	131,391,937	905,262,972	1,065,373,911
	Value	$18,450,111	$19,934,843	$124,352,096	$161,320,351
Kerosene	Gallons	81,140,295	74,511,400	687,027,289	687,543,847
	Value	$ 8,149,250	$ 8,301,815	$ 64,637,010	$ 65,862,181
Gas and Fuel	Gallons	121,485,655	88,620,369	1,059,981,341	1,026,192,676
	Value	$ 4,827,978	$ 2,681,588	$ 38,354,011	$ 34,287,866
Lubricating Oils	Gallons	37,369,783	30,649,629	270,278,248	285,710,664
	Value	$ 8,668,579	$ 7,318,218	$ 60,960,341	$ 65,907,015
Other refined products	Gallons	313,979	347,365	2,830,801	4,540,960
	Value	$ 48,535	$ 49,748	$ 381,946	$ 503,831
Paraffin wax	Lbs.	829,012,287	825,004,772	$263,866,025	$260,853,255
	Value	$ 1,661,384	$ 1,410,675	$ 14,096,266	$ 14,577,960

Table No. 10—Stocks Held by Refining Companies on March 31, 1926

Districts	Gasoline (Gals.)	Kerosene (Gals.)	Gas and Fuel Oils (Gals.)	Lubricants (Gals.)	Wax (Lbs.)	Coke (Tons)	Asphalt (Tons)	Other finished products (Gals.)	Unfinished Oils (Bbls.)
East Coast	424,106,000	56,501,000	206,061,000	119,486,000	56,806,000	6,757	103,894	6,303,000	7,159,000
Appalachian	47,383,000	9,129,000	20,859,000	36,445,000	15,324,000	634	79	2,342,000	1,026,000
Indiana and Ill.	258,790,000	35,382,000	34,100,000	33,473,000	27,682,000	12,976	17,069	21,808,000	3,369,000
Oklahoma and Kans.	167,568,000	15,150,000	139,926,000	19,553,000	3,869,000	26,054	831	3,632,000	1,860,000
Texas	235,143,000	66,989,000	285,643,000	66,380,000	8,175,000	56,411	7,655	296,000	7,574,000
Louisiana and Ark.	159,567,000	19,771,000	107,557,000	4,435,000	9,794,000	59,169	29,413	2,223,000	3,020,000
Rocky Mountain	197,910,000	12,618,000	57,088,000	7,841,000	8,594,000	57,819	8,452	83,000	1,741,000
California	445,869,000	78,372,000	.....	33,270,000	97,000	.....	27,659	14,432,000	*13,349,000
U. S. Total	1,936,336,000	293,907,000	851,234,000	320,883,000	130,341,000	219,820	195,052	51,119,000	39,098,000
U. S. Total Feb. 28, 1926	1,858,659,000	287,994,000	900,670,000	332,176,000	123,964,000	210,247	182,063	45,076,000	38,808,000
Texas Gulf Coast	208,137,000	57,357,000	244,160,000	64,937,000	8,158,000	51,841	7,655	152,000	7,065,000
La. Gulf Coast	152,600,000	19,315,000	72,387,000	4,431,000	9,794,000	57,601	29,308	1,962,000	2,842,000

*Includes 5,838,000 barrels tops in storage.

To Try Out Powdered Coal On Ships

By Special Correspondent

WASHINGTON, May. 8.—Experiments will be begun at the navy's fuel testing plant at the League Island navy yard to determine whether powdered coal can be used as a fuel on ships. Apparatus of the Fuller-Leigh type, is being assembled at that plant. The navy, the Shipping Board and the Bureau of Mines will be represented in the experiments.

P. A. S. Franklin, president of the International Mercantile Marine, recently was quoted as having said that unless fuel oil prices ceased rising steamship companies would have to give serious thought to returning to the burning of coal.

C. A. McAllister, former chief of the revenue cutter service, now president of the American Bureau of Shipping, the American competitor with Lloyd's in the inspection and rating of ships, a member of the fuel board of the Shipping Board is showing great interest in the matter and is inclined to the view that pulverized coal is the coming fuel because of the heavier demands placed upon fuel oil by industries, making it less economical for ships than formerly, although it still is far and away the most economical fuel.

All the coal trade organizations are also taking a great interest in the experiments, for very obvious reasons.

The idea is that pulverized coal, blown into the fire-box by air can be used for the generation of power at a much lower cost per horse power than burning it in the usual way.

There are three predominant draw backs. The first is that the coal must be pulverized where and as used. To pulwhat is popularly known as slate, subwould be almost as dangerous as transporting gunpowder. Dust of any sort, of anything other than stone, is a high explosive, the cause of wrecking many coal mines, flour mills and grain elevators.

The second is that while a ship may be run with fewer tons of pulverized than raw lump coal, the crushing apparatus and its operation tend to make pulverized coal almost as expensive, on account of the use of space that might be used for cargo, as ordinary coal. Inasmuch as the pulverized coal would be blown into the fire-box through devices now used in oil-burners, somewhat modified, there would be a smaller fire room force than in the case of an old-fashioned coal burner.

The third is the intensity of the heat generated by a coal dust fire. That may be reduced by the use of what are now the waste products of mines "bone" and what is popularly known as slate, substances that contain from 10 to 20 per cent of carbon instead of from 80 to 90 per cent, as in good coal. High carbon coal, pulverized, shot into a fire box and burned, is about the same, on the grate bars and other parts of the fire chamber, as would be the use of a blow pipe or an acetylene torch.

TULSA, May 8.—J. M. ("Cap") Bellamy, who has been bulk sales representative for the Sinclair Refining Co. in the Chicago district, has returned to his former home in Tulsa as assistant general agent in charge of Oklahoma and Arkansas bulk sales, Mr. Bellamy, prior to his transfer to the Chicago district, was sales manager for the Sinclair Oil & Gas Co., gasoline division, with offices here.

Kentucky Jobber Holds Big Pep Session

CINCINNATI, May 8.—William F. Burke, of the Kentucky Independent Oil Co. assembled 140 men, employes and associates of his organization, together with their wives and sweethearts on the roof of the Gibson hotel here on the evening of April 30 and gave them a highly enjoyable entertainment including a dinner and dance. The occasion was the introduction of Red Hat gasoline advertising into his sales program. It was a sales meeting of a most elaborate sort.

Raymond Shaw, director of advertising for the National Petroleum Marketers' Assoc. was there to inject his enthusiasm into the "pep session". He exhibited the N. P. M. A. projector screen display, showing the workings of the national advertising carried on by the Independent Oil Men of America and the local hook-up methods used by Independent jobbers who participated.

Mr. Burke had with him at the meeting his nearest competitors who also are participants in the Spread Red Eagle movement and marketers of Red Hat gasoline. Mrs. J. E. Smith of the J. E. Smith Oil Co., Washington Court House, Ohio, talked and so did Walter Bell of the Gerkins Oil Co., of Dayton. After these talks were over, and before the merry-making began, Mr. Burke told the gathering of advertising contracts he had recently signed with the two leading newspapers in Cincinnati, and of the new anti-knock gasoline his company would start marketing soon.

TEXARKANA, TEX.—O. A. Harley, formerly of Teague, Tex., has opened a new drive-in filling station here, handling Texaco products.

Gulf Quits Q. D. A. In Texas Marketing

PTTTSBURGH, May 8.—The Gulf Refining Co. announces that it has abandoned the quantity discount agreement in Texas and has substituted for it a straight 3-cent margin between the tank wagon and the service station price.

According to G. R. Nutty, vice president in charge of marketing, Texas was the only state in which the Q. D. A. was used by the Gulf. He said that he never was strong for it but the company had been forced by competition to adopt it. Many abuses crept in, he said, small buyers who were not entitled to it clubbing together on various pretexts to get gasoline at a discount and so on.

The conditions following its adoption in Texas were similar to those prevailing in many parts of Standard of Indiana territory and the abuses became so troublesome that the Gulf decided to discontinue it entirely.

Will Give Employes Vacation With Pay

CLEVELAND, O., May 7.—Announcement has been made by the Standard Oil Co. of New Jersey that employes in the manufacturing department of the company will be henceforth on practically the same basis as office workers as regards annual vacations.

Those who have been employed five years or longer will be given two weeks vacation with pay and those who have been employed as long as one year will receive one week with pay. Heretofore, the two weeks with pay was accorded to 10-year service employes.

Orinoco Will Drill

COLUMBUS, O., May 8.—Pure Oil Co has made location for its first well in Venezuela, where it operates under the name Orinoco Oil Co. The well will be drilled in the district of Miranda, about 12 kilometers from the El Mene field, one of the principal fields of Venezuela. The company has been in Venezuela for more than two years, but has confined its efforts to geological investigation and surveying property lines.

LOWELL, MASS.—Gasoline which was formerly marketed by the New England Oil Refining Co., Boston, and the Metropolitan Filling Stations, is now being marketed under the name of "Mayflower" gasoline. Business is reported good by A. J. Bowen, agent for the Mayflower Oil Co., Lowell.

Interests which are closely associated with the New England company recently affiliated with the Metropolitan Filling Stations, Inc.

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THE fact that this valve is now being furnished as *regular equipment* by the leading pump manufacturers, is one of the best possible evidences of its worth.

Another is the fact that many of the leading oil companies are replacing other valves with this valve which has stood the severest service and endurance tests. It is an economy to stop leaks wherever possible.

It is an exceptionally fast delivering valve, made in 1 inch and 1¼ inch sizes, and meets all the requirements of the Underwriters' Laboratories.

It is made entirely of the very highest-grade of brass. The operating lever is protected by a guard, cast in one piece with a body.

There are many other Buckeye Products for Service Stations that you should know about. The coupon below will bring you complete information.

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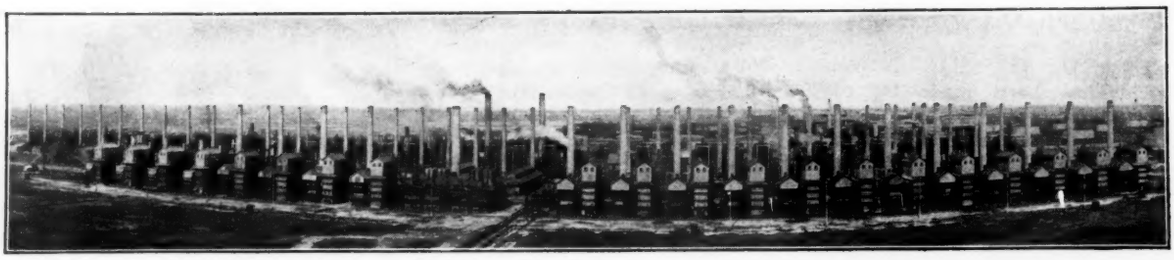
The Holmes-Manley *Cracking* Process



56 Units at the Port Arthur Works of The Texas Company

ALL of the Naphtha produced in 1925 from these units was finished by chemical treatment—*without steam stilling*

The Holmes-Manley *Cracking* Process

No re-running of the Naphtha is necessary with this process

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Absorbent Oil for Natural Gasoline Manufacture; Results of Tests

By Arthur L. Davis
Chief Chemist, Empire Refineries, Inc., Tulsa.
Delivered before Association of Natural Gasoline Manufacturers, Tulsa, May 5.

YEARS of experience, with constantly improved methods of manufacture with an improvement in the quality of products, have convinced the natural gasoline manufacturer that certain physical and chemical characteristics of the absorbent oil should be observed in order that the most satisfactory recoveries from natural gas might be obtained for the quality of the finished natural gasoline required.

Certain characteristics, which are given, may be of questionable value in the opinion of certain experienced natural gasoline manufacturers, but are presented in order that all the properties of possible value might be given.

Absorbent Oil

Color.—Good, to guarantee no lowering of color of the finished natural gasoline due to contamination by small quantities of lower boiling fractions.

Distillation.—Initial boiling point well above maximum boiling point of natural gasoline.

Doctor.—Sweet, to guarantee no contamination of finished natural gasoline by the presence of small quantities of sour absorbent oil.

Emulsion.—Good, in order that emulsion troubles in absorption system can not possibly originate with the oil.

Pour Point.—Low, so that satisfactory circulation and distribution of absorbing medium may be had under all operating temperatures encountered.

Saturation.—High, since maximum saturation obtainable from gas of any given natural gasoline content, with equal recovery, lowers operation costs.

Unsaturation.—Low, since products of high per cent unsaturated compounds do not seem to be the most suitable absorbents.

Vapor Pressure.—Low, in order that losses due to saturation of all natural gas treated with absorbent oil may be reduced to the minimum.

Viscosity.—Low, in order that maximum distribution may be secured.

The work presented deals primarily with the saturation obtainable by the use of refined fractions of specially prepared oils for this purpose, but still those which may be easily available for plant use.

Absorbent Oil-Pure Hydrocarbons

THE most satisfactory means of beginning such a study is to consider the action of certain pure hydrocarbons when absorbed in other pure hydrocarbons. In this manner we may obtain a preliminary view of what might be expected when we have a homologous series of these hydrocarbons, both in the natural gasoline and the absorbent oil, which will be finally considered. Other hydrocarbons, which are invariably present in varying proportions, have not been considered, since their inclusion would complicate calculations in a proportion not warranted by the amounts present.

Arthur L. Davis

Chief Chemist, Empire Refineries, Inc., Okmulgee, Okla., who presented a paper on "Absorbent Oil for Natural Gasoline Manufacture" at the annual meeting of the Association of Natural Gasoline Manufacturers, at Tulsa, May 5 and 6, 1926.

According to Raoult's law the vapor pressure of a solution is proportional to the mol fraction of the solvent present in the solution. The vapor pressures calculated are those of methane, ethane, propane, butane, pentane and hexane in the homologous paraffin hydrocarbons, ethane, propane, butane, octanne, decane, tri-decane and hexa-decane, at a temperature of 60° F. and a concentration of solute in solvent of 10 per cent by volume. The values for the vapor pressures of methane, ethane, propane and butane were calculated by the use of critical data for these hydrocarbons in connection with Duhring's rule. The physical characteristics of the hydrocarbons used in this paper are shown in Table 1.

The vapor pressure of the binary hydrocarbon blends are shown in Table 2, with the data for methane, ethane, propane shown graphically in Figure 1 and the data for butane, pentane and hexane shown graphically in Figure 2.

Considering the hydrocarbons, methane, to hexane as solute, with the other hydrocarbons as solvents, considered as the best absorbents for the solute used would be as follows:

Solute	Solvent
methane	butane
ethane	hexane
propane	hexane
butane	octane
pentane	decane
hexane	decane

It may be noted, particularly, decane, tri-decane and hexa-decane were selected, since their boiling points fall approximately at 350° F., 450° F., and 550° F., respectively. The average boiling point of 550° F. is probably characteristic of the most absorbent oils in use today.

The results obtained by calculating equilibrium conditions of pure hydrocarbons in other pure hydrocarbons at a definite percentage would indicate that the most optimum absorbents for these individuals were those of lower molecular weight and lower boiling point than were currently being used.

Absorbent Oil and Natural Gas

SINCE natural gas appears in probably as many different proportions of constituents as there are occurrences, it seems that the general trend is that there is a preponderance of methane with decreasing proportions of other gases with increasing boiling points.

A hypothetical natural gas has been taken where the occurrence of the hydrocarbons from methane to octane is directly proportional in per cent by weight to the vapor pressures of the respective hydrocarbons. This value is used for a gas containing 0.5 gallons of natural gasoline per 1000 cubic feet of gas (including one-fourth of the butane and all of the pentane, hexane, heptane and octane in the natural gasoline). In considering a natural gas containing 2.5 gallons and 5.0 gallons of natural gasoline, respectively, the proportions of the components of the natural gas and na-

tural gasoline fractions, respectively, have been maintained the same as in the 0.5 gallon gas with the proportions of natural gas and natural gasoline fractions varying in relation to each other.

The characteristics of the three natural gases are shown in Table 3.

With natural gas containing 0.5, 2.5 and 2.0 gallons of natural gasoline per thousand cubic feet, respectively, we may be able to calculate the equilibrium conditions which exist, using pure hydrocarbons from ethane to hexa-decane with vapor pressures given at 60° F. with the concentration of 10 per cent solute by volume.

The values obtained using the various absorbents are shown in Table 4 and graphically in Figure 3.

It would appear from the results obtained, that the following hydrocarbons would be most advantageous absorbents for the concentrations of the natural gasolines presented.

Gallons Natural Gasoline per 1000 cu. ft.	Absorbent
0.5	butane
2.5	butane
5.0	butane

It would seem that butane would be the most advantageous absorbent and this again checks the results obtained using the pure hydrocarbons individually.

Various Concentrations in Absorbent

ALL the values obtained have been on the basis of concentration of 10 per cent of solute by volume in solvent. The effect of varying concentrations, which normally occur due to design of equipment and conditions of operations, make it imperative that further information may be had regarding the effect of concentration.

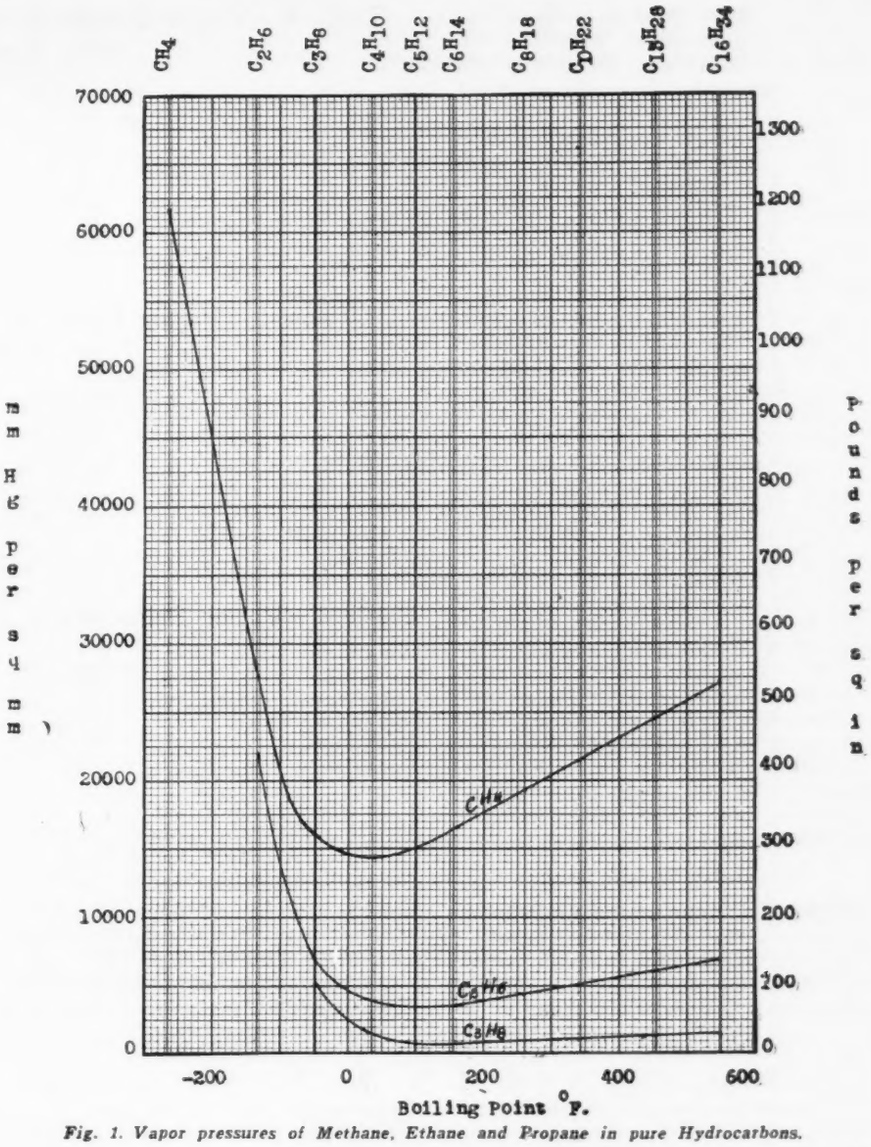


Fig. 1. Vapor pressures of Methane, Ethane and Propane in pure Hydrocarbons.

Table 1—Physical Properties of Paraffin Hydrocarbons

	Formula	Boiling Point °F.	Critical Data Press. Lbs. per sq. in.	Critical Data Temp. °F.	Mol. Wt.	Specific Gravity 60°F. (H_2O = 1)	Vapor Pressure 60°F. m.m.
Methane	CH_4	—265	735	—114	16	0.441	61,700
Ethane	C_2H_6	—135	664	— 95	30	0.446	22,000
Propane	C_3H_8	— 49	647	207	44	.536	5,375
Butane	C_4H_{10}	— 34	523	308	58	.600	1,240
Pentane	C_5H_{12}	97	...	...	72	.626	370
Hexane	C_6H_{14}	156	...	...	86	.663	118
Octane	C_8H_{18}	259	...	...	114	.717	15
Decane	$C_{10}H_{22}$	343	...	...	142	.750	2
Tridecane	$C_{13}H_{28}$	453	...	...	184	.792	1*
Hexadecane	$C_{16}H_{34}$	549	...	...	226	.815	1*

*Less than one.

Table 2—Vapor Pressures of Pure Hydrocarbon Mixtures

Solvent	Solute: Methane	Ethane	Propane	Butane	Pentane	Hexane
Methane	61,700 m.m.	....	....	....	....	....
Ethane	28,390	22,000	....	....	....	....
Propane	16,010	7,390	5,375	....	....	....
Butane	14,282	4,085	1,724	1,240	....	....
Hexane	16,676	3,987	869	262	147	118
Octane	19,210	4,592	964	203	62	27
Decane	21,552	5,250	1,099	223	59	17
Tridecane	24,500	6,115	1,290	260	68	19.6
Hexadecane	27,200	6,940	1,467	299	78	22.6

Table 3—Properties of Natural Gases

	Gallons natural gasoline per 1000 cu.ft.gas 0.5	2.5	5.0
Gravity, specific (air = 1)	0.681	0.785	0.905
@60°F. (H_2O = 1)	0.438	0.4718	0.5025
Molecular weight, ave.	19.75	22.6	28.8
Nat. Gasoline, content by volume @ 60°F. %	1.435	7.275	14.35
Nat. Gasoline gravity ° A. P. I.	93.9	93.9	93.9
Vapor pressure, ave. m. m.	52,110	50,033	46,321
Weight /gal. @ 60°F. lbs.	3.65	3.93	4.185
Weight / M cu. ft. lbs.	52.112	59.66	69.12

With the natural gas containing 0.5 gallon of natural gasoline to 1000 cubic feet, the equilibrium conditions with concentration of 2.5 per cent, 5.0 per cent and 10.0 per cent, respectively, in absorbent oil were considered. The data is shown in Table 5 with graphic presentation in Figure 4.

Under these conditions the following appear to be the better absorbents.

Per Cent Concentration—Absorbent Oil	Absorbent
2.5	butane
5.0	butane
10.0	butane

Still the superiority, as far as absorbent characteristics are concerned, seem to be in favor of butane which has a boiling point of only 34° F.

Original Data

WITH the preliminary considerations of the possibilities with pure hydrocarbons and due to the well known difficulty of making adequate determinations using natural gas containing various amounts of natural gasoline, it is considered desirable to find the optimum equilibrium condition using natural gasoline and several naphthas of reasonably

short distillation range but still of such nature that they might be easily reproduced economically. The characteristics of these materials are shown in Table 6.

Vapor pressure determinations were made of blends of the natural gasoline with each of the four naphthas shown, using the static isoteniscope, taking vapor pressure readings at 60° F. The data obtained is shown in the last column of Table 6.

A comparison made, showing butane and pentane absorbed in pure hydrocarbons is shown in Figure 5. These two hydrocarbons were chosen because the molecular weight of natural gasoline used was between the molecular weights of butane and pentane.

With equilibrium conditions, the optimum absorbent for natural gasoline with a molecular weight between butane and pentane, would probably be duodecane, while the optimum absorbent for pure butane and pentane would be octane and decane, respectively. In other words, it might be considered that under actual conditions, with the mixtures of hydrocarbons in both gas and absorbent oil, an absorbent oil of molecular weight approximately 28 units higher than that required for the pure hydrocarbons would be most suitable for use in absorbent.

Molecular Weight Range

REFERRING to Table 3 it will be observed that the average molecular weights of the natural gasolines considered were in range between methane and ethane, which would seem to reflect that since the optimum absorbent for ethane is hexane, under actual conditions the optimum absorbent for natural gas, with the concentrations given, would be a product which has an average molecular weight of octane.

Octane has a boiling point of 259° F. Let us consider the various absorbents which may include octane and the present absorbent oil with the ranges between these products, each fraction having a 100° F. distillation range. This would give us naphthas of the following ranges: 200-300° F., 300-400° F., 400-500° F., 500-600° F., with approximate average boiling points of 250°, 350°,

Table 4—Vapor Pressures with Three Natural Gases and One Concentration

Solvent	Solute Gallons Natural Gasoline per 1,000 cu. ft. Gas 0.5	2.5	5.0
Ethane	26,620	27,750	24,810
Propane	13,220	12,570	10,990
Butane	10,993	10,115	8,315
Pentane	11,788	10,793	8,733
Hexane	12,738	11,639	9,394
Octane	14,691	13,461	10,912
Decane	16,562	15,040	12,402
Tridecane	19,000	17,450	14,350
Hexadecane	21,200	19,500	16,150

Table 5—Vapor Pressures with One Natural Gas and Three Concentrations

Solvent	Solute Natural gas–0.5 gal. Nat. Gasoline–N cu. ft. Conc. in Absorbent Oil 2.5%	5.0%	10.0%
Ethane	22,325	25,000	26,620
Propane	7,190	9,570	13,220
Butane	3,825	6,435	10,993
Pentane	3,557	6,437	11,788
Hexane	3,642	6,920	12,738
Octane	4,283	8,134	14,691
Decane	5,052	9,372	16,551
Tridecane	6,030	11,030	19,000
Hexadecane	7,080	12,700	21,200

Table 6—Vapor Pressures of Natural Gasoline-Naphtha Blends

	Boiling Point Ave. °F.	Gravity A.P.I.	Gravity Spec.	Molecular Weight	10% Nat. Gas Vapor Pressure 60°F.
Natural Gasoline	...	88.7	.6426	79	...
Naphtha No. 1	350	49.5	.7818	144	115
Naphtha No. 2	434	42.5	.8132	175	97
Naphtha No. 3	506	39.3	.8285	199	122
Naphtha No. 4	572	36.0	.8448	231	140

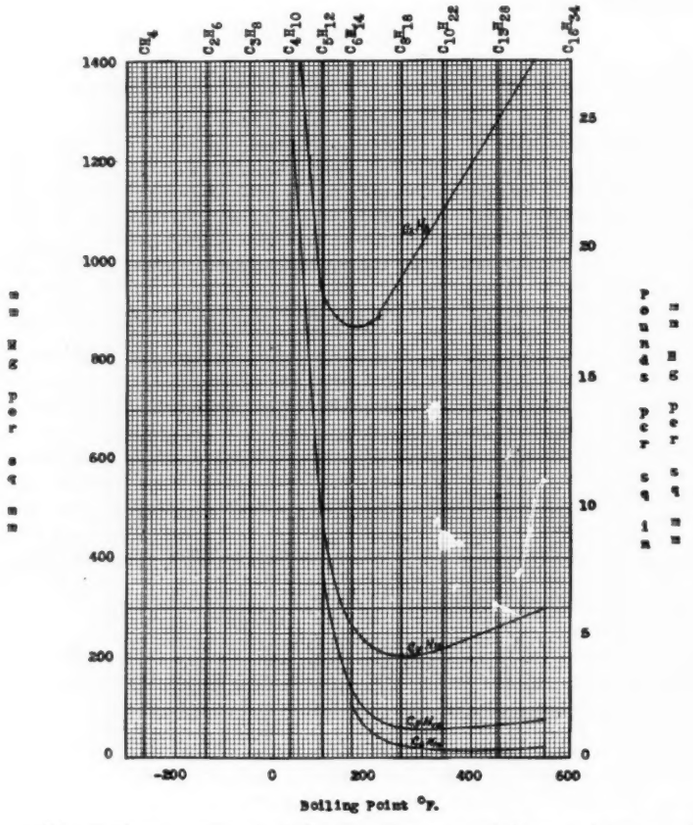


Fig. 2. Vapor pressures of Butane, Pentane and Hexane in pure Hydrocarbons.

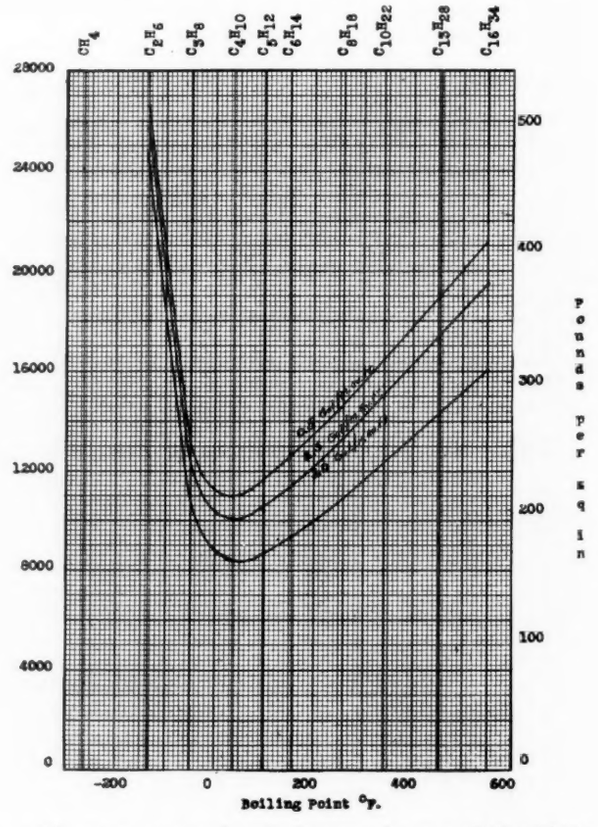


Fig. 3. Vapor pressures of natural gases in pure Hydrocarbons, concentration 10%.

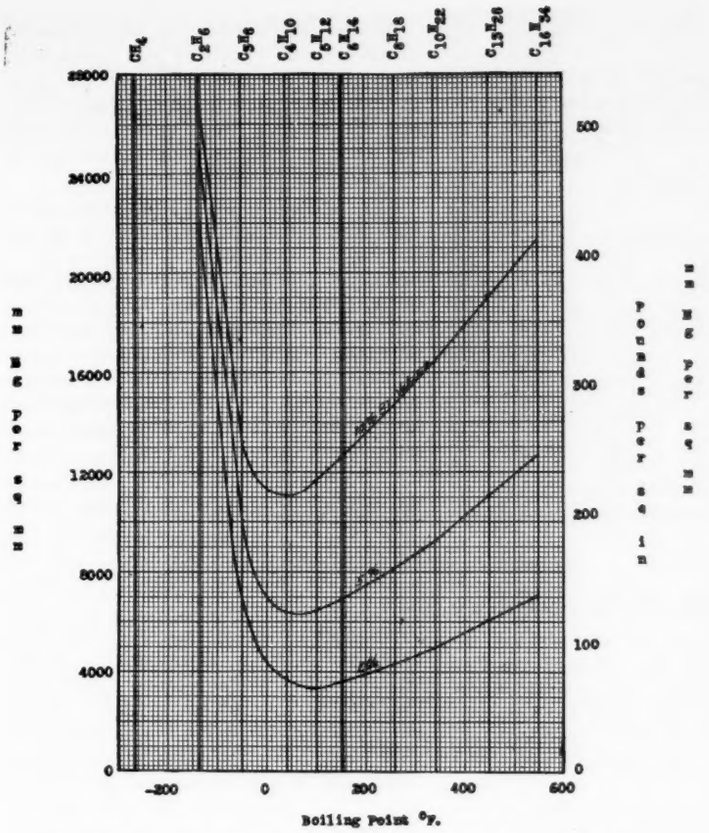


Fig. 4. Vapor pressures of natural gas in pure Hydrocarbons, three concentrations.

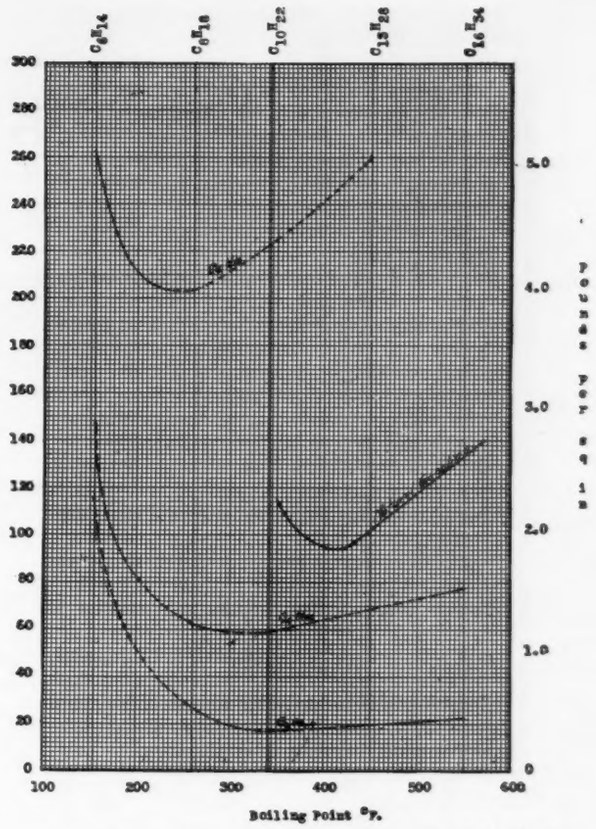


Fig. 5. Vapor pressures of Natural Gasoline-Naphtha blends.

450°, 550° F., respectively. In reviewing these fractions it will be observed that even though the material of 250° F. average boiling point is most desirable from the maximum concentration of natural gasoline obtainable in the absorbent and at the same time having the best recovery it would be quite economical to use either the fraction with an average boiling point of 250° F. or 350° F. since these are important gasoline fractions and would undoubtedly command prices out of proportion to their increased value as absorbents. This leaves the product with 450° F. average boiling point which is of such a range that it could be very easily and economically produced so that the cost would not be out of proportion to its advantageous characteristics. It would be considered best to have the products of average boiling point of 450° F. of as short a distillation range as possible, but it is not feasible to have a range much closer than 90-110° F. It will be considered that this absorbent will then have a distillation range of approximately 400-500° F. with an average boiling point of 450° F.

Properties of New Absorbent Oil

THE absorbent oil which would be considered best for operation in the recovery of natural gasoline may be prepared with the following characteristics:

Color.—16 to 21 Saybolt as required.

Distillation.—Initial 400° F., maximum 500° F., average boiling point 450-460° F. The initial here is well above the maximum of natural gasoline which will ordinarily be from 275-350° F.

Doctor.—Sweet.

Emulsion.—Good

Pour Point.—Below zero degrees F.

Saturation.—Same saturation obtainable with present absorbent oil at 30-40 pounds lower operating pressure.

Unsaturation.—Low.

Vapor Pressure.—Slightly higher than present absorbent oil, but not in proportion such as to increase losses which are largely of mechanical nature.

Viscosity.—Low.

With these characteristics we have an absorbent oil which has certain advantages over the ones at present in use and should assist the natural gasoline manufacturers materially in operation, both as to quality of products and reduction of cost.

Acknowledgement

ACKNOWLEDGEMENT is made to Messrs. George H. Dalhquist, J. H. Cromwell, and John F. Stewart for assistance in securing original data and for the preparation of this paper.

Business Gains On Cash Basis

GREENSBORO, N. C.—L. H. Martin, Inc. owns and operates 15 service stations after being in the oil business one year. A 20 per cent increase in business has been made, all business being conducted on a cash basis, and L. H. Martin, proprietor, reports no accounts receivable to bother with. A new zoning law in this city forbids the installation of service station drive-ways within 50 feet of residences or apartments, and within 100 feet of churches, according to Mr. Martin.

Fight Barring of Asphalt Base Lubricants

Staff Special

HOUSTON, May 8.—Specifications providing for paraffin base lubricants to be supplied the equipment division of the Texas state highway department have brought on a controversy at Austin where contract awards are to be made this month. Some of the bidding companies that manufacture only asphalt base oils are considering bringing injunction proceeding to restrain the highway department from requiring paraffin base oils exclusively.

In the past there has been no differentiation in the specifications between asphalt and paraffin base oils.

Bids of nine companies offering two grades of lubricating oil were opened at Austin May 1. Roy I. Tennant, member of the board of control will award the contracts following recommendations of Ed Estes, equipment engineer. Among the bidders are The Texas Co., Magnolia Petroleum Co., Gulf Refining Co., Humble Oil & Refining Co., Litwood Oil & Grease Co. of Fort Worth, Ivan C. Miller of Austin, Skelly Oil Co. of Tulsa, Oriental Oil Co. of Dallas and Pierce Petroleum Corp.

This is the second time bids have been received on these contracts which probably involve $500,000 worth of material. All previous bids were rejected and the Pierce Petroleum Corp., which had the 1925 contract was permitted to continue for four months, pending the award of the new contracts. The 1925 contracts totalled about $350,000.

Gassing Slightly

By Rollin Stone

The Honnable M' Ness Bursts Out Again

Editor's Chirp: There was blood on the moon the minute that the Federal Oil Conservation Board or Dr. George Otis Smith or somebody, as related in our issue of April 21 beginning on page 79 and continuing to bottom of third column, asked petroleum geologists this significant question: "How's tricks?"

We say the lunar orb was ensanguined because we knew there was no way, short of mayhem, of keeping Mr. MacNess out of the argument. Long as we have known him, same being too long, he has never hesitated to give his opinion whether he had one or not. In this case he seems to have one and we welcome him as either an ally or an antagonist, according to which side you, kind reader, happen to be on. We shall not hesitate to repudiate him if you are on the other side—provided that after reading his discourse you can tell which side he is on. In fact, we shall deny having published his article if you insist.

For the benefit of those who came in late, we shall publish the questions sent by Dr. Smith to the geologists and to which Mr. MacNess gives reply.—Rollin Stone.

The Questions—

"1—*Is the estimate of* 5,300,000,000 *barrels of oil recoverable by present methods from existing wells and proved acreage a reasonable estimate?*

"2—*Is the estimate of* 26,000,000,000 *barrels remaining in producing and proved acreage a reasonable estimate? Is it significant? That is, is this oil or an important part of it recoverable by methods and at prices and within a period that justify the United States and its industries in relying upon it as an important factor in maintaining production?*

"3—*What value do you attribute to the 'billion acre reserve?' Do you agree with the Committee of Eleven that the* 1 *billion,* 100 *million acres of unproved land constitute the 'major oil reserves of the U. S.' and 'will provide vast quantities of oil?'* Specifically:

"(*a*) *Have we a reserve of approximately a billion acres 'of land of geological formation favorable to the presence of oil?'*

"(*b*) *Have we a reserve of approximately a billion acres of land 'in which geology indicates oil is possible?'*

"(*c*) *What reasonable reliance can be put on this reserve for maintaining future production?"*

The Reply

The Honble. Rollin Stone,
National Petroleum News,
Cleveland, Ohio.
Dear Sir,

"Sic transit gloria mundi."

These words sprung, or sprang, involuntarily to my lips when I read in your paper that the "Triumvirate plus" of the Oil Board had paged the Geological profession as to their reactions on, to, or regarding the conclusions of the A. P. I. Eleven.

As Cassius said to Brutus, "What have I done to endure all this?"

After the painstaking and exhaustive research I devoted to this question aforetime; after the conclusions I concluded had received world-wide publicity by being published in your excellent and universally respected magazine; after the storm of commendation, condemnation and consternation which my forensically succinct summing up of the situation evoked; after, I repeat, the preponderating mass of weighty evidence and constructive theorizing which I submitted had peradventure and beyond doubt stilled criticism, controverted reason and closed the door to argument; after all this, the Oil Board have seen fit to ignore me and have not seen fit to consult me.

Such base ingratitude, such pandering to petty professional jealousy, such short-sighted insularity, such criminal negligence on the part of those responsible for the very existence of the basic and fundamental industry of your country makes me shudder.

Justifying This Diatribe

ANGELS must weep at the spectacle of those men, appointed by your First Citizen and Ruling Elders to act as the Moses (plural) who were to lead the Petroleum Industry out of its bondage into an era of fair prices and adequate reserves, thus basely betraying the trust reposed in them, and for the sake of a two cent stamp, and no doubt at the instigation of small potatoes (for there are such) in the geologic profession, omitting to avail themselves of my mature and enlightened judgment. Be that as it may, I have a duty to the industry at large and am too broad-minded to let the slights of politicians divert me from discharging my obligations.

Besides, the publication of my disquisition in your excellent and universally read magazine will do much to allay popular misapprehension and foreboding, and will reach a much wider circle than any anonymous poison-pen letter filed in the archives of the Board.

The questionnaire, I believe, deals with estimates arrived at by a special committee of the A. P. I. As a matter of principle, I never read the publications of that body, having seen photographs of its leading members in your excellent magazine (which I understand is universally read) and so come to a consideration of the whole subject with an open mind, in fact so wide open as to be a blank.

In answer to question No. 1, I have no hesitation in saying that the figure 5,300,000,000 barrels of recoverable oil, by, from and off, as set forth, is merely a wild guess and unworthy of the designation of an estimate.

All authorities are agreed (and I include the I. C. S. and Pelman) on the efficacy of the molecular capillarity theorem as applied to problems of this category. By a careful manipulation of this scale, I find that the correct figure would and should be 5,300,000,006.73 barrels. I have been urged to extend this to .75 but prefer the less optimistic figure, to allow of a margin of safety.

Exhibit 2. The estimate of 26,000,000,000 barrels remainder is outrageous and is significant of nothing except the ineptitude of those who arrived at it. Cicero, in his "Prime Movers," clearly demonstrates the absurdity of such a claim and I refer my readers to him.

Making It Inclusive

OTIS hits the nail on the head every time when he puts these questions beginning "by," "at," and "within," because he implicates the Committee on Standardization as to methods, the Standard Oil as to prices and the Astronomer Royal as to time. Nothing but good can result from thus widening the basis of the investigation.

Canticle 3 reminds me of a parson's discourse where, under the First head, he tells you the text, in the Secondly he departs from it, and, under Thirdly, he never comes back to it.

There is only one legitimate answer to the bald and uncompromising question—"Do you agree with the Committee of Eleven?" Specifically and in toto, when it is put to us as man to man, I do not, and, in parenthesis, hope I never will, as I would then have cause to believe that I am losing out in a battle against hereditary insanity.

These gentlemen are wasting their time. The facility they display in juggling with billions and millions, these heaven-sent expressions such as—

"LAND OF GEOLOGICAL FORMATION FAVOURABLE TO THE PRESENCE OF OIL,"

"IN WHICH GEOLOGY INDICATES OIL IS PROBABLE."

"MAJOR OIL RESERVES"

would ensure them the freedom of the city and steady employment in Calgary at the present time.

Think of Wortham, California, Minnesota, Nebraska, Florida, Alaska, Lake Placid and Yonkers. Visualize Colorado, with its School of Mines; Chicago and its success in casing off the waters from the Great Lakes; Miami, adding thousands of desirable acres to its area every day; Pennsylvania, where a major strike occurs annually; Signal Hill, Gettysburg and Rex Beach, and then, in the words of Horatius, ask yourself:—

"Come 7, come 11, do Rock Hounds lie,

"Or can we trust the A. P. I.?"

For the information of the Board, Otis asks (in absentia as it were) my frank professional opinion of the validity and significance of those estimates.

You Do, Indeed

I TAKE advantage of the pages of your widely read and, I believe, highly esteemed magazine to answer—scorning hole-and-corner methods, refusing to resort to animosity, and with the full knowledge that my professional reputation (if any) will lead those who read these words to accept my dictum without scruple and without dividends—that:—

(1) The Validity of the estimates of the Committee of Eleven of the A. P. I. is significant only if valid.

(2) The Significance of the said estimates of the said Committee of the said Institoot lies in their validity, if any.

(3) There is reason for hoping that the National Petroleum News is in a much healthier condition than the National Petroleum Situation.

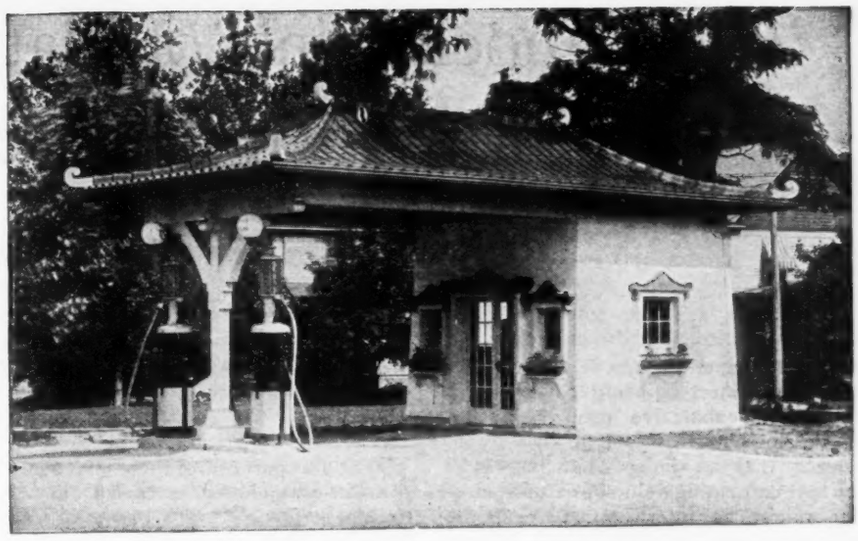
I fear I may have been somewhat outspoken and that the technicalities necessary to establish my view-point may have proved wearisome to a minority of the readers of your excellent periodical, but "the truth is mighty and must prevail, rough hew it how we will."

Yours fundamentally,
IAN MacNESS.

Will Formulate Rule On Air Drives

HOUSTON, May 8.—A general rule governing the use of compressed air in the production of crude oil is to follow a conference held April 30 with Chief Supervisor H. E. Bell, of the oil and gas division of the Texas Railroad Commission at Wichita Falls. More than 50 operators took part.

The rule, it is announced, will probably take the following general course: That no one shall install machinery for the purpose of applying pressure to sands without first obtaining permit from the Commission, issued after due notice has been given to all parties concerned and a hearing had and further that the Commission shall have supervisory control over the matter and set forth such restrictions as might be required in the interest of conservation and the equitable rights of others.



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Anti-Knock Effect of Natural Gasoline Varies With Different Fuels

By A. Ludlow Clayden
Research Engineer, Sun Oil Co., Philadelphia
Delivered before Association of Natural Gasoline Manufacturers, Tulsa, May 5

THIS paper is purposely brief since the subject is being covered in a more exhaustive manner by Dr. Leslie and Dr. Brown. The writer considered that an independent check of the anti-detonating value of natural gasoline might be interesting to compare with the results obtained by the authors of the more complete paper.

Since there is no absolute measure for detonation it is inevitable that different results will be obtained when different equipment is used. The method employed by the writer for testing the detonating qualities of fuels is to run them in a single cylinder engine, equipped with the Midgley Bouncing Pin apparatus.

The engine used is a Regal marine engine, 4-inch bore x 3-inch stroke, with a special piston which increases the compression to the ratio of 5.25 to 1. This gives a very flat combustion chamber form since the motor is an "L" head and, consequently, the detonation is very violent for the degree of compression employed. The compression ratio of 5.25 to 1 in this engine is probably equivalent to at least 6 to 1 in an engine of more compact construction.

Midgley Instrument Well Known

THE Midgley instrument is now so well known it is unnecessary to decribe it again. The author will merely make the reminder that the measurement of detonation is made by observing the rate at which gas is formed by the electrolysis of water. The gas is collected in a graduated tube and the author's system is to compare fuels on the basis of the time required for the formation of one-half cubic centimeter of gas. This means that the better the fuel, the longer the time.

The standard of comparison used in the Sun Oil Co.'s laboratory is a supply of straight run California gasoline of approximately U. S. Government specification. A considerable quantity of this was set aside originally and is matched by blending other gasolines, so that the consumption of the standard fuel is very small. The engine and the Midgley instrument are so adjusted that with the standard fuel 100 seconds is required for the formation of the one-half centimeter of gas. The fuel is then changed, an observation made, and then immediately another run is taken on the standard fuel. Results should check within 3 per cent, if the instrument is functioning properly. Results which do not check within this limit are discarded.

Mid-Continent Gasoline As 100

FOR the purpose of these tests a gasoline was chosen cracked from Mid-Continent gas oil which had a figure of merit of 100, in other words, it happened to be exactly the same as the straight run California standard. Blends were made with 10 per cent, 20 per cent and 30 per cent of casinghead and the results were as follows:

Fuels	Detonation Figure of Heat
Original gasoline	100
Original gasoline plus 10% casinghead	115
Original gasoline plus 30% casinghead	130
Original gasoline plus 30% casinghead	150

A further comparison was made, using benzol instead of casinghead, which showed that 10 per cent benzol gave a figure of merit of 150, or that the casinghead, an anti-detonating blend material in this particular gasoline, had a value approximately one-third that of benzol.

Tests also made on similar blends of 10, 20 and 30 per cent with a straight run gasoline having an original figure of merit of 75 were considerably inferior to the cracked Mid-Continent. In this case the effectiveness of the casinghead was only one-half what it was in the other series of tests. In other words, its benzol value was approximately one-sixth instead of one-third. This is a somewhat curious result but one which has been observed many times before in blending for anti-knock quality.

Anti-Knock Effects Differ

IT apparently does not necessarily follow that the effectiveness of the anti-knock blending agent is equally great with all gasolines. This is most likely due to the probability that the Midgley instrument does not give readings in direct proportion to the violence of detonation, but to some power of the actual violence. For instance, benzol blended with a fuel having a figure of merit of say 60 will not show the same percentage in figure of merit as it will when blended with a better original gasoline. In other words, it is easier to improve a fuel from a figure of merit of 100 up 150 than it is to improve a poorer fuel with a figure of merit of 50 up to 75.

The Midgley instrument is capable of giving highly accurate and entirely reproducible results, but like most precision instruments it requires careful handling, and the greatest precautions must be taken in order to obtain check results. It is perhaps worth noting that the action of the instrument depends upon the following factors:

Extreme cleanliness of all moving parts.
Clearance between top of pin and lower contact blade.
Clearance between contact points.
Accurate facing and cleaning of the contacts.
Absence of lubricating oil.
Absence of soot.
Regularity of temperature of the instrument.
Spark advance.
Mixture richness.
Humidity of the atmosphere.
Perfect valve seating.

Cleanliness Most Important

VARIATIONS in any one of these things can throw out the reading or make it erratic, but cleanliness is the most important. It is essential to take the instrument completely apart and go over every bit of it every few hours of running.

This looks like a rather formidable list of possible sources of error, but in actual practice it is not difficult to control them all.

W. R. Boyd Talks On "Industrial Solidarity"

TULSA, May 8.—W. R. Boyd, assistant General Secretary of the American Petroleum Institute, spoke May 6 on the topic, "Industrial Solidarity." Mr. Boyd, after pointing out the advantages of economic management and team work in the industry, closed his address by saying:

"Finally, I would be willing to wager that as the natural gasoline industry expands and prospers, as it must, you will in future credit much of your industrial success to the solidarity which you are building in your own branch of the industry and to the contribution which you have and will make to the over-all solidarity of the entire petroleum industry. Men, like you, who have done their bit in the pioneering work of building this comparatively new industry cannot fail to receive the reward for your labor, nor can you, with your vision, overlook nor forget Kipling's line—

"It ain't the individual nor the army as a whole,
But the everlasting team-work of every blooming soul."

Use of Natural Gasoline Is Big Factor In Conservation of Oil Resources

By John M. Hall
General Manager, Oil State Gasoline Co.

OUR government and every individual is deeply interested in the conservation of petroleum and its products in our own country, as well as in the oil producing territories throughout the world. We had instances in the last century where governments and individuals unwisely or through corruption squandered, dissipated and diverted natural wealth and resources.

Fortunately, the trend of modern times is toward conservation and the fact that the petroleum industry can be expected to do its part is shown in the increasing amount of motor fuel now being manufactured in which natural gasoline, i. e., gasoline made from gas as distinguished from gasoline made from crude oil, is playing no small part.

This article will deal briefly with the industry in general, calling attention more particularly to the natural gasoline industry which will be a vital factor in any petroleum conservation program of the future. The world very willingly admits American supremacy in the petroleum industry and we very graciously accept the honor, although we possess approximately only one-twelfth of the petroleum resources of the world, and the petroleum reserve of no other country has been so extensively drawn upon to meet foreign demands.

Conceding much improvement in the future in refining operations as well as in engineering achievements and inventions, the day is coming when our domestic demand will exceed our petroleum supply. Gasoline consumption is increasing at the rate of 16 per cent each year. Are we doing all possible to delay this day by conservation and is our government demanding and laying proper plans so that we will have the opportunity to explore and develop the petroleum resources of the world without discrimination—or, are we just drifting? The part we will play in the future world development of petroleum will be largely determined by the extent we are permitted to enlarge our foreign explorations and develop and produce petroleum unhampered on foreign soil. Today our petroleum resources are open to the world, and it seems we should have a definite understanding as to what position other nations are to assume in the future with reference to their petroleum development, and govern ourselves accordingly.

ONE of the most immediate and practical opportunities for the conserving of petroleum in this country is the further development and use of natural gasoline which has already proven of great economic value. The Bureau of Mines bulletin giving motor fuel statistics for the year 1925 reports 1,103,000,000 gallons of natural gasoline produced and used throughout that year, which was 9.83 per cent of all motor fuels produced.

Seventy-five per cent of the natural gasoline produced was used in refineries, or 7.61 per cent of the total gasoline produced at refineries was natural gasoline. We hope that the above statistics together with the discussion which follows will enable you to realize the tremendous growth and development of this industry in the last few years and to see some of its possibilities.

A word of explanation as to how the gas obtains its gasoline content might be well at this time. The gas comes in contact with the oil either in the oil formation or on its way out of the ground and absorbs out of the oil some of its lighter gasoline properties or gases. The gas imbibes itself similar to a sponge thrown into water and its absorbing and cohesive attraction gathers some of the molecules of gasoline contained in the oil which unites thoroughly throughout the gas, thus becoming what is known as "wet gas." Originally this gas had a specific gravity or weight less than air, therefore, it is incapable of carrying any heavy ends of the petroleum, but to the contrary, absorbs only the lighter and purer gases of the gasoline content of crude oil. Even the more skeptical must admit the purity of gasoline produced under such conditions.

Principal Processes

THE three principal methods of extracting the gasoline content from gas are as follows:

1. By compressing the gas through powerful compressors and then passing it through cooling coils which condense the gas into a liquid known as natural gasoline.

2. By passing the gas through absorbing towers which contain a heavy absorbing oil that requires from 450 to 550 degrees of heat to start it to vaporizing. This is well over the end point or final distillation of natural gasoline which runs between 350 and 375, thereby removing any possibility of the absorbing oil when it is run through the still and heated to throw off its gasoline saturation which it has absorbed in the towers, contaminating the gasoline vapors that pass through the cooling coils and condense into natural gasoline. This process is known as the absorption method. In many instances the compression and absorption methods are used together.

3. By passing the gas through charcoal. This method is very similar to absorption through oil and equally proficient in avoiding any heavy ends getting into the natural gasoline. Most modern gasoline plants are equipped with treating plants which produce a doctor sweet product. It is now ready for market, being graded both as to its distillation recovery which runs from 78 per cent to over 90 per cent and its gravity which ranges between 72 degrees and well over 90 degrees. When it is convenient and profitable, the refineries purchase these grades and run them through their stills, thereby raising the lower gravities of their gasoline and naphtha up to commercial specifications ready for consumption. In this way they secure an excellent motor fuel. It is customary for refiners to put gasoline into storage through the winter months in order to handle more easily the heavy summer demand.

This storage stock often loses some of its volatility and natural gasoline is used to restore it to a commercial product. It is also blended by some gasoline plants with naphtha and with low gravity gasoline which when properly produced corresponds very closely to refined gasoline.

Fairness Urged

THE natural gasoline industry is in its infancy and solicits and appreciates constructive criticism and suggestions from outside agencies. It has always followed the policy and showed its willingness to cooperate with any government bureau or any refineries in working out difficulties and problems as they arise.

It combats and objects most strenuously to unfair, untrue and unreliable propaganda put out against it, intentionally or otherwise. In order to inform the public correctly regarding the natural gasoline industry and its product, disinterested and highly technical and scientific men are making an investigation, the results of which will be broadcasted throughout the land.

If their findings are favorable, the burden of proof will naturally be thrown

The Petroleum Register

Mid-Year Edition 1925

can give you information on 10,000 companies in all branches of the oil industry —names, addresses, officers and properties.

Some of the classifications are:

525 Refiners
3,000 Marketers and Jobbers
3,500 Producers of Crude
425 Compounders
700 Natural Gas Manufacturers
1,750 Equipment Manufacturers
72 Oil Associations
675 Drilling Contractors
750 Foreign Companies
175 Grease Manufacturers
533 Natural Gas Plants and Capacity

It also includes 53 pages of maps and a list of 1,300 trade names.

National Petroleum News
803 Caxton Building, Cleveland, Ohio

Here is my check for $7.50 for the Mid-Year Edition of THE PETROLEUM REGISTER

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Address _____

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back upon those who have spread this misinformation. The only request the industry has to make of the general public is that it accept only facts substantiated by proof and not the ideas of people who may be prompted by selfish motives.

Cheap gasoline invites waste and waste must be discouraged as the oil industry is entitled to a fair price for its product. In return it should produce the best motor fuel possible. Since the price of low volatility gasoline which is offered especially in the summer months will undoubtedly be less than the price of higher volatility products, it should not be considered as a standard either in quality or price. The general demand for higher volatility in gasoline for year around use is rapidly growing in popularity and should continue to grow.

It is believed a more uniform price throughout the year would be possible by the use of higher volatility gasoline, which would materially assist in creating a more general and uniform demand for natural gasoline which so vitally affects this industry.

Natural gasoline plants are operated in practically every field in the country and aid greatly in increasing the production of crude oil. They hold a vacuum on oil producing sand, thereby increasing the production of petroleum; in other localities the residue gas from the plants is being put back into the sand under pressure which is enabling the producers to recover production unobtainable by ordinary methods.

Cannot Shut Down

DURING depressions and dull seasons, refiners are usually able to close down their plants or cut their runs to the stills until the demand for their product strengthens sufficiently to justify full time operation. This is not true of natural gasoline plants as they must operate at full capacity continually, handling the gas as it is produced from the wells. In the past this has forced many operators of natural gasoline plants to run at a heavy loss and store their product because of market conditions.

If a demand as nearly uniform as possible could be established it would not force this unjust loss on the plants and would make it impossible for other branches of the industry to stay out of the market until such time as they could buy natural gasoline below cost or at an unfair price to the natural gasoline manufacturers.

We do not wish to put ourselves in the position of criticizing the refining industry which is absorbing large quantities of our product at this time and which we expect will use even greater amounts in the future. They have many perplexing problems of their own to dispose of.

Does it not seem that the government and its agencies as well as the general public has a well-defined duty to perform? Can it further delay definite action in the conservation of petroleum and its products? The natural gasoline industry has full confidence that in the very near future this issue will be met squarely and that the proper results will be obtained.

Future generations must not be permitted to suffer a petroleum shortage due to our failure to use economically our natural petroleum resources.

In conclusion, let us again insist that the users of motor fuel follow their best personal interests by demanding a product containing a reasonable percentage of natural gasoline to insure volatility and by so doing play a part in the conservation of petroleum and its products and assist in maintaining a valuable industry.

Jack Murray Introduces Colonel Stewart

CHICAGO, May 8.—J. L. Murray, head of the department of markets of National Petroleum Marketers' Association, introduced Robert W. Stewart, chairman of the board of the Standard Oil Co. of Indiana, when he delivered an address at the Consistory Club at Bloomington, Ill., on April 30. The occasion was a dinner at which a majority of the directors of the Standard Oil Co. were in attendance.

Bloomington was the last stop for the Standard Oil directors as they returned to Chicago from an inspection of division points in Indiana and Illinois. Besides Colonel Stewart, the party consisted of W. M. Burton, president; E. G. Seubert, secretary and treasurer; Allen Jackson, vice president; E. J. Bullock, director of purchases; T. J. Thompson, general manager; John D. Clark, vice president, and assistant general managers, H. A. Lewis and Amos Ball.

Mr. Murray, being an old resident of Bloomington, an oil man of Colonel Stewart's acquaintance, and once an official of high rank in the Bloomington Masonic organization, was asked to do the honors. Mr. Murray said:

"It is a conspicuous recognition of the change that has taken place in the oil business that a representative of the National Petroleum Marketers Association, the greatest organization of Independent Oil distributors in the world, should come before you to introduce the man who directs the activities of their greatest single competitor.

"The yardstick of accomplishment is the true measure of a man's ability. Colonel Stewart and his able associates are handling a big job and carrying with it the burden of an enormous responsibility.

"Just a very few years ago the various Standard Oil companies enjoyed by far the major share of the petroleum distributing business; that situation has

rapidly changed. Competition has come in with almost unbelievable speed. In the past decade this competition has increased enormously. Some years ago the Standard Oil Co. undoubtedly was able to dictate the price. Today, while they are still the agency which may move the figures—and properly so because they are represented as one company under one management in every town and city in the territory in which they operate—the price itself is determined in the fiercest competitive battle that has ever raged in any industry, and yet Colonel Stewart's real competition is not from the outside. The sternest competitor of the Standard Oil Co of Indiana is the Standard Oil Co. of Indiana itself.

"When industrial organizations attain vast size and power, the responsibilities of the executives who direct these forces grow ever heavier. The great machine must be kept moving up the grade. The history of the past few years has clearly demonstrated Colonel Stewart's ability and capacity to ably direct these giant forces."

N. P. M. A. War Chest Grows to Useful Size

CHICAGO, May 7.—National Petroleum Marketers' Association is rapidly building up its "war chest," a cash account known as the Legal Defense Fund. About a week ago, President L. V. Nicholas issued an emergency call to the oil jobbing industry to create a defense fund to attack illegal Q.D.A. contracts in the courts. He asked all the oil men on the association's mailing list to contribute to it, whether they were members of the association or not. He suggested that the donations be not less than $25 for the smallest Independent oil man on the list.

Mr. Nicholas stated May 1 that every mail had brought money for the fund since the letters had been delivered. "We have three mails a day here," he said, "and every mail has brought not less than $100 in aggregate. Some mails have brought as high as $300. We have enough money now to conduct a real legal fight where legal action is considered necessary."

The idea of the fund originated at the recent national convention in Chicago after William Ritchie Jr., an Omaha lawyer, had discussed the Quantity Discount method of marketing. He did not attack the Q.D.A. as illegal, but showed where certain distortions of it in his opinion, were illegal. He showed how abuses of the Q.D.A. in one locality might spread easily to others and urged oil men to meet local problems of this kind as a unit, checking illegal marketing methods wherever they might start.

PORTLAND, ORE.—Gibbs Bros. has taken over another service station here and has installed its oil bottle system at the station.

Type K 16x30x10 ft.

There are 70 Different Types of Permanent Shepard Stations

QUICK DELIVERY
READY FOR QUICK ERECTION
BY YOUR OWN MEN

WIRE COLLECT FOR CATALOGUE

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Give Better Service

Get Better Profits

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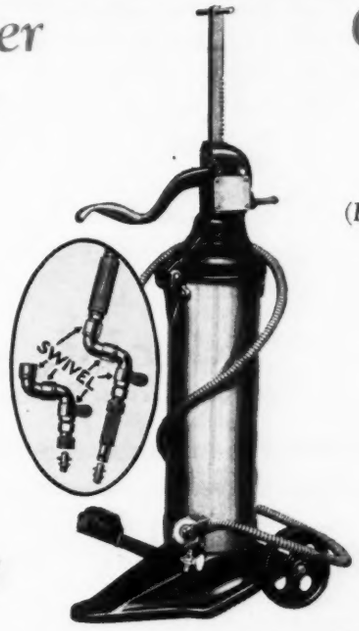

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BALCRANK **TYPE "D"** **High Pressure Lubricator**

You can render quicker and more efficient lubricating service—and at a greater profit—with the Balcrank High Pressure Lubricator. It enables you to lubricate a car quicker, more thoroly, and at less cost.

Compare these points with the gun you are now using:

1. Foot pressure—one man operates—less fatiguing.
2. Positive pressure—uses any grade of light or heavy automotive grease—not affected by climate.
3. Adaptors for all lubricating systems—100% service—unrestricted profits.
4. One universal and three swivel joints allow working in close places and prolong the life of the hose.
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See how the Balcrank Type "D" High Pressure Lubricator can help you to give better service and get bigger profits

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The Balcrank High Pressure Lubricator will thoroly clean and lubricate the average bearing with one shot. Foot operation leaves both hands free to operate the chucks.

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Please send me complete literature on your new Type "D" High Pressure Lubricator.

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Address .....
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QUALITY

Not one penny for needless selling expense

This is the great idea back of VOLCKER VISIBLE nation wide success. That is the one and only reason why the VOLCKE VISIBLER, standing second to none in Quality, Speed and Efficiency sell for the amazing low price of only

Type P-G	*Type P-H*
5 gallon hand	*10 gallon hand*
$68.00	**$73.00**

Volcker Mfg. Company
Riverside Drive, Huntington, Indiana

Simplicity—Not "Features"

WHEN you read about an Air Compressor that has a lot of 'features' and many 'improvements' just stop long enough to remember that multiplying of parts in any type of mechanism opens up greater possibilities of danger. Simplicity of construction, the minimum of parts, is insurance against breakage or troubles in operation.

'Dayton' Air Compressors Have Fewest Parts.

Manufactured in
25 Styles and 7 Types.

This is the popular size and style used by large buyers with many stations. . . .

STYLE G-2

Get a catalog

The LUCAS PUMP & TOOL COMPANY DAYTON, OHIO.
DAYTON AIR COMPRESSORS

425 Valley St. **Dayton, Ohio**

Industrial Notes

Mathieson Alkali Works, Inc., New York, has appointed William A. Field, formerly the company's St. Louis territory representative, as its Chicago district sales manager with offices at 310 S. Michigan Ave. He succeeds J. B. Peake, who resigned. Frederick H. Lovenberg, who was formerly at the New York sales office, is now in charge of the St. Louis district sales office.

The Mathieson company has arranged with the Fields Point Mfg. Corp., Providence, R. I., whereby Daniel Townsend, president of the latter company, will have charge of both companies' products in New England territory under the supervision of the Mathieson company which maintains New England offices at Providence.

* * *

The Davis Welding & Mfg. Co., Cincinnati, O., manufacturer of truck and storage tanks, has opened a new office at New Orleans, in charge of J. H. Bayle. Mr. Bayle had been for four years formerly, production engineer at the company's headquarters at Cincinnati.

Mr. Bayle is a graduate of Boston "Tech" and is a native of New Orleans. The new office will cover the company's southern district which includes Texas, Arkansas, Louisiana, Mississippi, Tennessee, Alabama, Florida and Georgia.

* * *

Westcott Valve Co., Seneca Falls, N. Y. has been awarded the order for valves for the gas line which is being built from the Monroe, La. field to Baton Rouge by Standard Oil interests. The line is 22 inches in diameter and 175 miles long.

Industrial Catalogues

Chicago Bridge & Iron Works, 37 W. Vanburen St., Chicago.—In order that it will become generally known in the industry that the success of the Wiggins roof is due primarily to the method of sealing the roof at the tank shell, this company has published a bulletin giving that information. The roof, which is designed to prevent evaporation and fire losses, has been successful the past five years due to its gas tight seal, the company states. Previously inventors of floating roofs had believed evaporation could be stopped by merely making a float cover most of the oil surface in the tank.

* * *

Dean Hill Pump Co., Anderson, Ind.—Double suction centrifugal pumps, their construction features and dimensions, are illustrated and described in circular No. 402. A pump connected to gasoline engine and one with special features for the oil industry are shown.

New Oil Station Construction

Sutherland, Neb.—A. Q. Hoatsen & Son, who operate a garage here, will install tank car storage for handling gasoline and kerosene. Deliveries will be made by a tank truck.

* * *

Bridgeport, Neb.—Beyers Service, a firm comprised of Mr. Beyers and Mr. Yates, is building filling station with storage space for oils and auto accessories.

* * *

Rochester, Pa.—Johnston Bros. is erecting service station here. Gasoline and oils of Sutton Gasoline Co., Monaca, Pa., will be handled.

* * *

Salem, Ore.—H. T. Ridders is erecting filling station and camp on the Pacific highway across the Willamette river from Albany.

* * *

Rock Rapids, Ia.—Standard Oil Co. of Indiana, Chicago, will erect service station here, replacing its old station.

* * *

Arthur, Ia.—Johnson Oil Co., Sioux City, Ia. completing filling station here.

* * *

Kissimmee, Fla.—Sinclair Refining Co. is erecting distributing station here.

* * *

Duluth, Minn.—Harbor City Oil Co. seeks permit for filling station.

* * *

Wilcox, Neb.—Joseph Wright & Son Oil Co. building filling station.

* * *

Garrison, N. D.—Standard Oil Co. of Indiana to build filling station.

* * *

Portsmouth, O.—Portsmouth Oil Co. building filling station here.

* * *

Sulphur Springs, Ark.—Glenn Allen will build filling station.

* * *

Garden City, Kan.—Skelly Oil Co. will build filling station.

* * *

Holdenville, Okla.—J. B. Stamper erecting filling station.

* * *

Cuero, Tex.—Louis Hyak, grocer, building filling station.

* * *

Ironwood, Mich.—Alex Danula to build filling station.

* * *

Boone, Ia.—Elmer Crouthamel building filling station.

* * *

Maywood, Neb.—Artley & Flock erecting filling station.

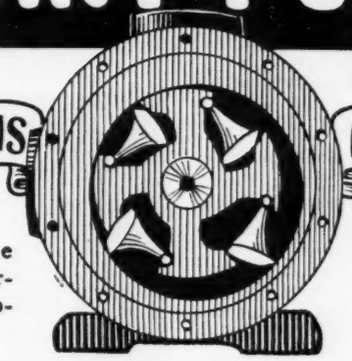
* * *

Salisbury, Mo.—E. M. Fidler building filling station.

* * *

Avoca, Ia.—Frank Wise building filling station.

BLACKMER ROTARY PUMPS



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Capacities from 3 G. P. M. to 500 G. P. M. hand or power operated.

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4025 Boulevard Place, Indianapolis, Ind.
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Stearns-Rogers Mfg. Co., Denver, Colo.
1320 Starks Bldg., Louisville, Ky.
429 Broadway, Milwaukee, Wis.
549 Plymouth Bldg., Minneapolis, Minn.
306 Wells Fargo Bldg., New Orleans, La.
71 Murray St., New York, N. Y.
904 Real Estate Trust Bldg., Philadelphia, Pa.
711 Ferguson Bldg., Pittsburgh, Pa.
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Filter Presses — *Wax Moulding Presses*
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Complete Wax Plants designed and built
Pumps, Stills, Towers, Condensers and other Oil Refinery Equipment
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BETHLEHEM, PA.
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HERE & THERE

National Petroleum News

Jack Dyer and Joe Lynch, of the D & L Oil Co., Inc., Newark, N. J., are back on the job after motoring to Chicago to attend the recent N.P.M.A. convention.

Both agreed that Indiana boasts some of the finest mud this side of the Mississippi, and at one point report pulling up grade through a stretch of mud hub deep, but "thanks to Red Hat gasoline and oil, the sturdy Stutz made everything with lots to spare" is what Mr. Dyer, secretary and treasurer of the company, says.

* * *

John H. G. Boer, who has been chief clerk at the East Paterson, N. J. office during the past three and one-half years for the Tide Water Oil Sales Corp., New York, has just been promoted to agent at the company's new station at Eatontown, N. J.

John Bush has just been promoted to Mr. Boer's former position.

* * *

J. T. Rhodes, district supervisor at Jonesboro, Ark. for the Standard Oil Co. of Louisiana, New Orleans, has been promoted to manager of the Little Rock, Ark. office, effective May 1. Mr. Rhodes succeeds J. N. Foster, who has been transferred to Nashville, Tenn.

* * *

L. C. Hockenbury, manager of the Niagara Falls Oil Co., Niagara Falls, Ont., has recently returned from a business trip through the Middle West. Mr. Hockenbury attended the N. P. M. A. convention in Chicago. The company reports doing a good business in 100% pure Pennsylvania motor oils.

* * *

W. H. Maesing, who was previous to Jan. 1 chief accountant at the Newark, N. J. departmental office of the Tide Water Oil Sales Corp., New York, and ow salesman at East Paterson, N. J., won the Paterson district local sales contest during February and March.

* * *

William Slater, who has been looking after construction work on the new 20,000 barrel refinery at Bayonne, N. J. of the Gulf Refining Co., Pittsburgh, Pa., has returned to the Port Arthur plant of the company after putting the new Bayonne plant into operation.

* * *

Leader Iron Works, Decatur, Ill., manufacturer of oil equipment, and tanks, has appointed O. B. Meadows, who was until recently in the oil business for himself, as representative covering northern Iowa and southern Minnesota territories.

* * *

Mr. Risser, who has been in the sales end for many years at Kansas City, Mo., has just joined the sales department of Bell Oil & Gas Co., Tulsa. Mr. Risser will open a Kansas City, Mo. office for the company on May 1.

H. M. Wilson

who was re-elected president for a second term of the North Dakota Petroleum Association at its annual meeting in February. Mr. Wilson is president of the International Oil Co., Minot, N. D.

Roland L. Drake, superintendent at the Port Arthur, Tex. plant of The Texas Co., is an active member of the improvement campaign for Port Arthur as head of that city's chamber of commerce and shipping. Waterways are being enlarged to accommodate increasing shipping, an extensive paving program is being carried out, additional parks are being laid out, several thousand trees were planted this spring, and the city is being generally beautified under Mr. Drake's direction, according to reports.

* * *

William J. O'Sullivan, treasurer of the American Oil Co. of Massachusetts, Cambridge, Mass., has just returned from Tulsa where he inspected properties owned by him and by J. F. Hayes, vice president of the company.

* * *

Berry V. Stoll, vice president of the Stoll Oil Refining Co, Louisville, Ky., has just returned from a sales trip through the eastern section of the country.

J. A. Hamon, secretary and treasurer of Enid 80 Oil & Gas Co., Enid, Okla., has made reservations on a steamer leaving New York on July 3 for Denmark, where he will attend the world conference of the commonwealth land party which will be held at Copenhagen, July 20 to 30.

While in Denmark, Mr. Hamon hopes to be able to look into the oil developments of that country. He will proceed to Germany, France and England also where he intends to give the oil business the "once over."

Two years ago Mr. Hamon was at Oxford, England, at the meeting of the single taxers of the world.

* * *

A. E. Adams has recently opened offices for Hughes & Co., Chicago marketers of fuel oil, in the Williamson Bldg. in Cleveland. He will handle their business in the state of Ohio. Mr. Adams was formerly with the American Petroleum Products Co., of Cleveland, and before that for several years he was with the Burroughs Adding Machine Co. in New York.

* * *

Lloyd F. Wiliams, who has been salesman at Fresno, Calif. for the Ventura Refining Co., Los Angeles, has left that position to take charge of the marketing of petroleum products in Merced and Mariposa counties for John R. Graham. Mr. Graham is distributing Calpet gasoline of the California Petroleum Co., Los Angeles, and Ventura motor oils in those two counties.

* * *

Burr Combs, formerly assistant manager of the Leader Oil Co., Dubuque, Ia. has been elected secretary and treasurer of the company, succeeding L. W. Dax, who resigned on Apr. 1. Mr. Dax had been secretary and treasurer for the past 11 years.

Mr. Combs will continue also as assistant manager.

* * *

H. A. Rohde, for years identified with the Lindsay-McMillan Oil Co. here, who recently was put at the head of that firm's lube oil marketing subsidiary, is now in business for himself in West Allis, Wis., operating as the West Allis Oil Co., and selling lubricants and gasoline.

* * *

J. P. Meyer, for the past seven years handling Standard of Indiana products at Dyersville, Ia., for the Standard Oil Co. of Indiana, Chicago, has sold his trucks and interests to Gregory Tanke. Mr. Meyer has not decided as to his future business.

ON THE LAZY BENCH

National Petroleum News

Supplemental Income Tax Report For Oil Men

Business Questionnaire No. 26

1. Are you married or single?
   Why?
2. Did you draw any money from the bank last year?
3. Are you on friendly terms with your relations?
   If so, why?
4. Can you give the name of anyone who has less intelligence than yourself, yet making more money?
5. If the volume of business is low in winter months, do you wear a belt or suspenders?
6. State average grocery bill and payments, if any?
7. Do you drink?
   If so, where do you get it?
8. Exclusive of bootleggers, how many persons are dependent upon you for support?
9. Do you keep chickens?
   If so, does your wife know it?
10. Are you troubled with cold feet?
    Whose?

EXIT. —The Unloading Rack.

A customer called and stated he would like to have a delivery of Kerosene Distillate as quickly as possible.

Our telephone operator informed him there was no truck at the plant at the time, and, as four of the drivers were home sick, she would take care of him as promptly as possible. The customer replied: "Oh, well, if they get very sick let me take care of them."

The customer is an undertaker.

—Flash and Fire

Thought He Was a Real Estate Man

W. B. Lamb (Gulf) approaches hotel desk in Charlotte, N. C.—"What are the rates on your rooms?"

Clerk—"Ten dollars up."

Lamb—"But, my dear man, I'm from Jacksonville, Fla."

Clerk—"Then it's ten dollars down."

—The Unloading Rack.

What It Looked Like

Real Estate Man—"How do you like the little stucco bungalow I built for you?"

Johnson—"It's getting on my nerves! Cars stop every day and ask for gasoline and free air."

In Good Form

Savidge (Texas Co. of Denver)—"Is LaGarde a good swimmer?"

Daniel—"He ought to be, he knows all the best dives in town."

—The Unloading Rack.

Oversold

R. R. Adams was called upon in the public speaking class last Monday to give a speech for the purpose of stimulating action. It ran thus:

"Fellow citizens, I have fought against the Indians. I have often had no bed but the battle field, and no canopy but the stars. I have marched over the frozen ground 'till every step has been marked with blood. I ask your support in the coming election."

The speech appeared to have "gone over" big when one listener piped up, "I'll be darned if you haven't done enough for your country. Go home and rest, I'll vote for the other fellow."—Pacific Gasoline Booster.

A Scot, says Ian MacNess, was hurrying along the street and was met by a friend.

"Where are you going in such a hurry?" asked the latter.

"I'm going for a doctor; I don't like the look of my wife", was the reply.

"All right", said the obliging friend, "I'll go with you. I hate the sight of mine."

Come on Boys, What Is It?

A secret organization has apparently been formed, with some obscure purpose, among members of the Refiners Oil crew. You start to talking to some one in all seriousness, and then he breaks out with, "Have you heard about the Cob Club?"

—Flash and Fire

This Happened in "Ol' Kaintuck"

Contractor to girl stenog. temporarily left in charge of supply store: I want to get a Manila Cracker.

Girl Stenog.: You are in the wrong place mister, you can get vanilla crackers at the grocery on the corner.

—Bridgeport Driller

Heavy Stomach

Our friend Courtenay of the Sun Oil at Philadelphia—"That fellow over there sure must be pretty sick."

W. H. Booth—"Why?"

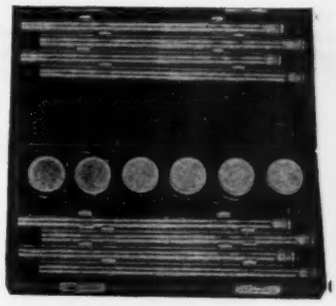
Courtenay—"They say he just threw up his job." —The Unloading Rack.

Why?

Billy O'Connor (at a formal dance in Ponca City) — "George, did that girl blush when her shoulder strap broke?"

George Evans—"I didn't notice."

—The Unloading Rack.



A Pocket Sample Case

No. 135 L-U-C-E POCKET CASE is 10⅝"x5¼"x2", fitting conveniently into the side pocket of your coat. Covered with black seal grain, genuine cowhide, with two nickel plated side catches, it assures a favorable first impression. It contains eight 9" x½" bottles and seven ½ oz. grease jars in a compact, convenient manner. The lining is red plush. Complete with your name embossed in gold, *guaranteed* to please, net only **$5.85**

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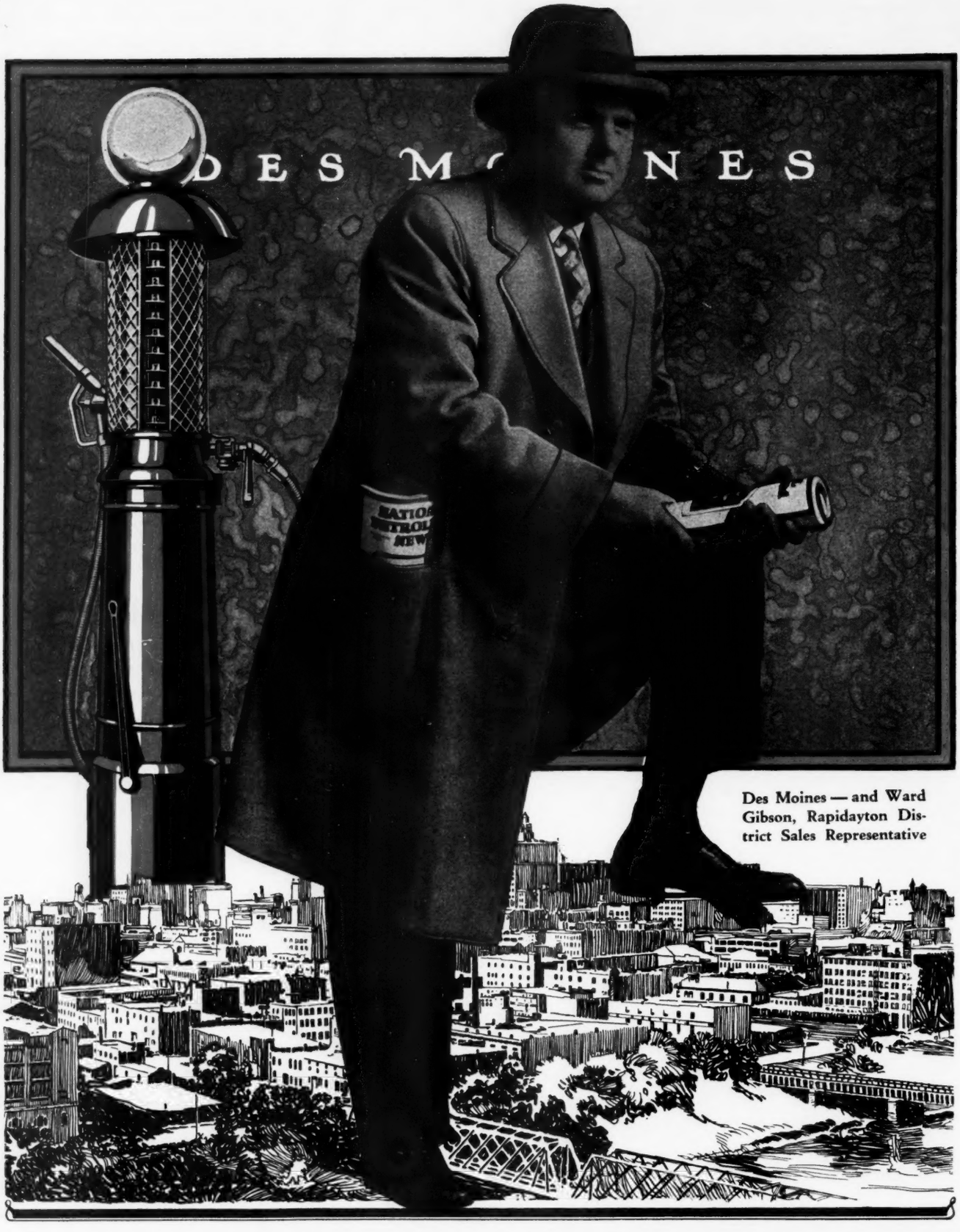


Des Moines — and Ward Gibson, Rapidayton District Sales Representative

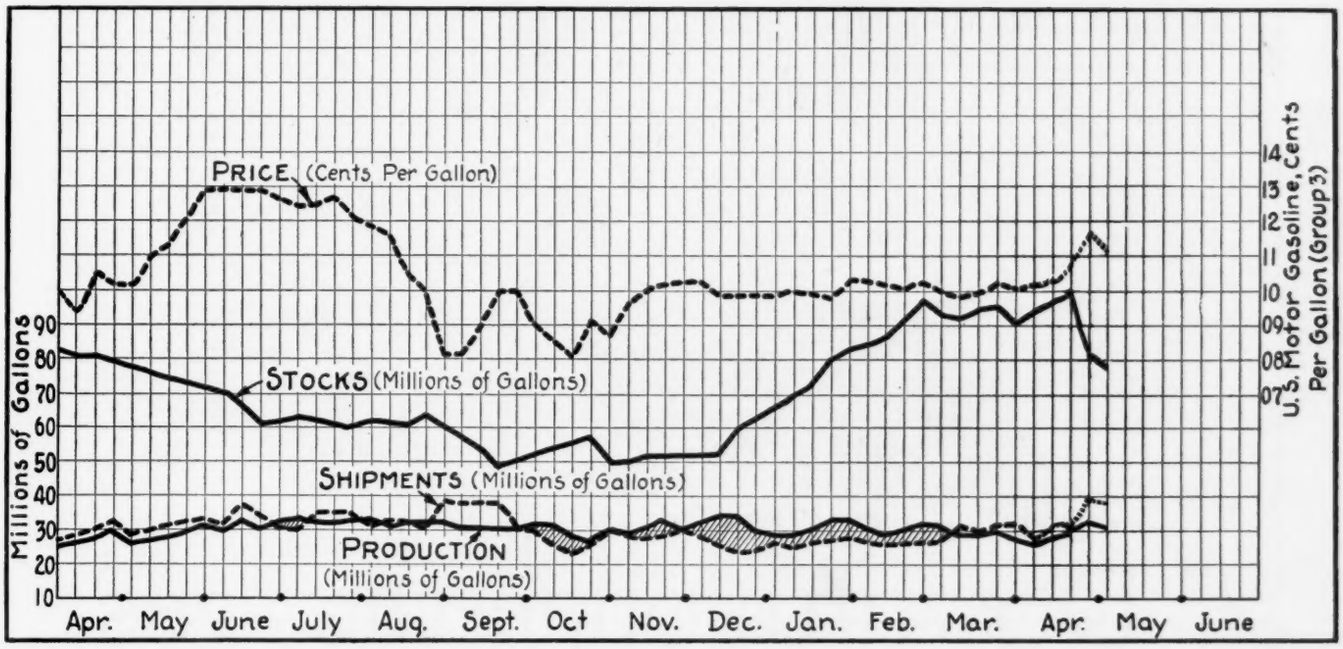
Rapidayton

TRADE MARK REG. U. S. PAT. OFF.

Refinery - Tank Wagon Markets

National Petroleum News

Barometer of the Mid-Continent Gasoline Markets Week Ended May 7


PRICE (Cents Per Gallon)
STOCKS (Millions of Gallons)
SHIPMENTS (Millions of Gallons)
PRODUCTION (Millions of Gallons)
Millions of Gallons
U.S. Motor Gasoline, Cents Per Gallon (Group 3)
10 20 30 40 50 60 70 80 90
07 08 09 10 11 12 13 14
Apr. May June July Aug. Sept. Oct Nov. Dec. Jan. Feb. Mar. Apr. May June

Mid-Continent Gasoline Prices Soften

Staff Special

TULSA, May 8

THE lull in buying which followed in the wake of tank wagon price advances in the last three or four days of April was the principal factor in causing the Mid-Continent gasoline market to experience a slow but steady softening during the first week of May.

Refiners were able to prevent a more rapid settling of the market because they were well booked on orders before the advance and the resultant heavy shipments kept them from being pressed for places to put their gasolines. As these orders were filled, however, the hoped-for pickup in buying failed to materialize and there was only one way open for a few refiners: that was to begin shading prices for immediate instructions.

The buying lull also was felt by marketers who had purchased heavily before the advance, and they, too, began offering gasoline at lower than refinery prices, knowing that they could take this step and still make a profit on their deferred shipment purchases.

A few of the larger refiners who are better equipped than the smaller ones for storing, clung to the prices established after the first tank wagon advance and were able to sell small quantities of gasoline, but almost without exception declared business was only fair.

The strike in England is being closely followed by the refined oil industry to ascertain the possible effects the huge walk-out will have on the refinery markets.

May Stimulate Export Buying

ONE refiner who has been reading all details he can obtain said today that he would not be surprised to see exporters enter the field at any time for considerable quantities of gasoline. He based his statement primarily on the fact that dispatches from England indicate practically every available motor vehicle has been pressed into service. If these cars continue to operate on such a basis for two or three weeks, the refiner said, it is probable the supply of gasoline will become so low in England that active buying here will start.

Another phase of the strike is the effect it will have on the fuel oil market. Curtailment of the coal production will naturally cause some increase in the consumption of fuel oils, but it is generally felt in the Mid-Continent that the strike will have to be in force for a considerable time before this area can expect a noticeable change in demand for fuel oils.

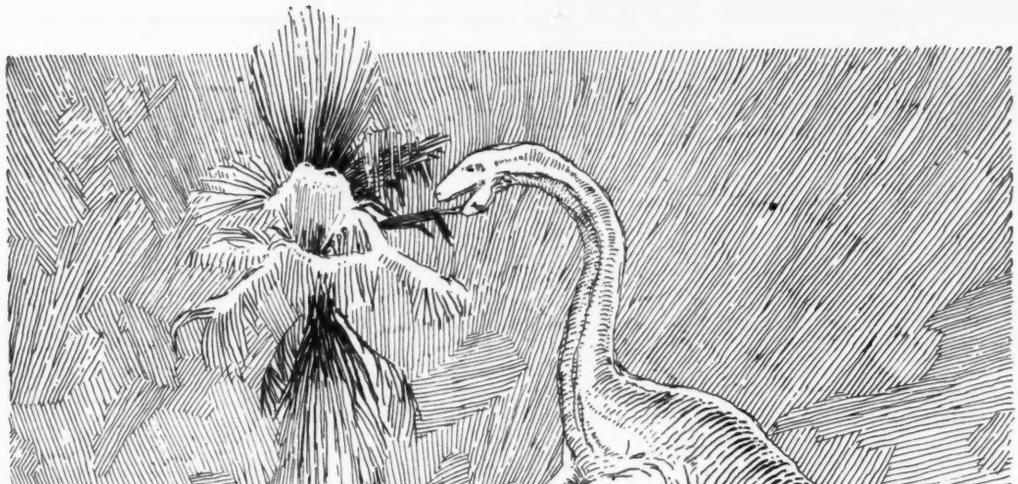
Naphtha prices have got widely out of line this week, due to the steadily increasing prices of kerosenes. Refiners continue to cut deeper into their naphthas for greater kerosene yield.

One large buyer of naphthas aptly illustrated the situation today. "Many a time these refiners have called me," he said, "and asked me to move their naphtha for them and pay at my convenience. Now I have to call every refiner in the field and when I do find a few cars I'm asked almost as much per gallon as some grades of 58-60, 437 end point gasoline are bringing."

Heavy gasolines have been in only fair demand. Inquiries were increasing at the close of the week, however, and as soon as the weather takes on another warm spell buying is expected to increase.

U. S. Motor gasoline had an uneventful week in practically all parts of the Mid-Continent. Early in the week one

(Continued on page 117)



Down through the ages..

From the days of the Dinosaur---when the swamps harbored their multitudes of prehistoric animals --- when tropical vegetation's rank growth flourished and died ---when Nature in her convulsions changed the surface of the earth and created a gigantic chemist's mortar and pestle in which was created the minerals and the oil---

science and history carry us on down to the modern age where we take from the earth her riches in new forms created by Nature's alchemy.

OIL, one of the wealth producers, has created a great industry contributing to our nation's wealth and to human happiness.

And from the natural gas is taken NATURAL GASOLINE, the most volatile of Nature's products, that it may be added in proper proportion to refined gasoline to make the perfect motor fuel.

Thus has Nature brought to us, down through the ages, another product to broaden and quicken the life of a great nation and an enlightened world.

NATURAL GASOLINE

CHESTNUT & SMITH
CORPORATION
TULSA, OKLA.

Refinery Markets on Light Oils and Lubricants

Pennsylvania, Oklahoma, North and South Texas, Louisiana, Arkansas, California

GASOLINE AND NAPHTHA

PENNSYLVANIA	Prices May 10	Prices May 3	Prices April 26
52-54 Naphtha	13 -13½	12¾-13	12 -12¾
54-56 Naphtha	13¼-13¾	13¼-13½	12½-13
58-60 Gasoline	13¾ 14	13¾-14	-13
60-62 Straight-run gasoline	14¼ 14½	-14½	13¾-14
64-66 Straight-run gasoline	15 -15½	15 -15¼	14¾-15
68-70 Straight-run gas. 350-360 E.P.	-16	-16	15¼-15¾
68-70 Straight-run gas. 305-320 E.P.	-20	-20	-20
OKLAHOMA			
48-50 450 E. P. naphtha	10¾-11	-10¾	- 9½
50-52 450 E. P. naphtha	-11	10¾-10⅞	9½- 9¾
56-58 450 E. P. gasoline	-11	-11	10 10¼
56-58 U. S. Motor gasoline	11 -11⅛	11 -11¼	10¾-10⅝
58-60 450 E. P. gasoline	11 -11⅛	11 -11¼	10 -10¼
58-60 U. S. Motor 437 E. P.	11¼-11½	-11½	-10⅝
60-62 400 E. P. gasoline	12¼-12⅜	12¼-12⅜	-11½
64-66 390 E. P. gasoline	-12½	12½-12⅝	-12
64-66 375 E. P. gasoline	12½-12¾	12⅝-13	12¼-12⅜
68-70 350-360 E. P. gasoline	13¼-13½	13¼-13½	12¾-13
64-66 437 E. P. blend	-11¼	-11	9¾-10⅛
KANSAS*			
58-60 U. S. Motor gasoline	-11¾	-11¾	-10¾
60-62 400 E. P. gasoline	12½-12¾	12½-12¾	11½-11¾
64-66 375 E. P. gasoline	13½-13¾	13½-13¾	12½-12¾
*F. O. B. refinery Kansas destination.			
NORTH TEXAS			
48-50 450 E. P. naphtha	-10¾	10½-10¾	- 9¾
56-58 450 E. P. gasoline	10¾-11	-11	9¾-10
58-60 450 E. P. gasoline	-11	11 -11⅛	10 -10⅛
56-58 U. S. Motor gasoline	11 -11⅛	-11⅛	10 -10⅛
58-60 U. S. Motor gasoline	11¼-11⅜	11¼-11½	10⅜-10⅜
64-66 390 E. P. gasoline	12½-12¾	12½-12¾	12 -12⅛
64-66 375 E. P. gasoline	12½-12¾	12¾-13	12¾-12⅜
68-70 350-360 E. P. gasoline	13 -13½	13¼-13½	-12¾
NORTH LOUISIANA			
58-60 U. S. Motor 437 E. P.	-11¼	11¼-11½	10⅝-10¾
ARKANSAS			
58-60 450 E. P. gasoline	-11¾	-11¾	-10⅝
58-60 U. S. Motor gasoline	11½-11¾	12 -12¼	10¾-11
64-66 375 E. P. gasoline	-13¼	13½-13¾	-12¾
CALIFORNIA			
54-56 U. S. Motor gasoline	12½-13	12½-13	12½-13
42-43 Engine distillate 445-480 E.P.	10 -10½	10 -10½	10 -10½

Note: This is without the 2-cent state tax included in the price of California refiners for shipments within the state.

NEW ENGLAND (F. O. B. Boston and Fall River)			
U. S. Motor gasoline	-14⅛	-14⅛	-13½

NATURAL GASOLINE

(Note: End point of all grades, not over 375° F.)

OKLAHOMA			
Grade Double A	10½-10¾	10¾-11	9 - 9¼
Grade A	10½-10¾	10¾-11	9 - 9¼
Grade Double B	-10¼	-10	- 8¼
Grade B	-10¼	-10	- 8¼
Grade C	-10	9¾-10	8 - 8¼

NOTE—Specifications adopted by Ass'n. of Nat. Gaso. Manufacturers
Grade Double A—80-87.9 gravity, 90% recovery, not over 375 E. P.
Grade A—72-79.9 gravity, 90% recovery, not over 375 E. P.
Grade Double B—84-92 gravity, 85% recovery, not over 375 E. P.
Grade B—76-83.9 gravity, 85% recovery, not over 375 E. P.
Grade C—80-90 gravity, 78% recovery, not over 375 E. P.

NORTH LOUISIANA			
*Grade Double A	11 -11¼	11 -11¼	9¼- 9¾
*Grade Double B	10½-10¾	10½-10¾	8⅝- 8¾
*Grade C	10½-10¾	10 -10¼	- 8¾
*F. O. B. Monroe District.			
NORTH TEXAS			
*Grade Double A	10½-10¾	10¾-11	- 9
*Grade A	10½-10¾	10¾-11	- 9
*Grade Double B	-10¼	-10	- 8¼
*Grade B	-10¼	-10	- 8¼
*Grade C	-10	9¾-10	8¼- 8¾
*F. O. B. Breckenridge.			
CALIFORNIA			
78-84° 375 E. P.	15½-16	15½-16	16 -16½
PENNSYLVANIA			
68-70 Grav. 437 E. P.	14 -14¼	14 -14¼	12½-13
64-66 Grav. 437 E. P.	14 -14¼	14 -14¼	12½-13
60-62 Grav. 437 E. P.	14 -14¼	14 -14¼	12½-13
68-70 Grav. 420 E. P.	14¼-14½	14¼-14½	13¼-13¾

BURNING OILS

PENNSYLVANIA			
45 Water White Kerosene	-11	-10½	- 9½
46 Water White Kerosene	11 -11¼	-11	- 9¾
47 Water White Kerosene	11¼-11½	-11½	10 -10¼
300 Burning Oil	8½- 9	8½- 9	8 - 8½
OKLAHOMA			
41-43 Water White Kerosene	10 -10¼	9 - 9¼	- 8
42-44 Water White Kerosene	-10½	9½- 9¾	8¼- 8½
KANSAS			
41-43 w. w. kerosene	10 -10¼	9¼- 9½	8½- 8¾
42-44 w. w. kerosene	10¼-10½	- 9¾	- 9
NORTH TEXAS			
41-43 Water White Kerosene	10 -10¼	9 - 9¼	7¾- 8
NORTH LOUISIANA			
41-43 Water White Kerosene	10 -10¼	9 - 9¼	7¾- 8¼
ARKANSAS			
41-43 Water White Kerosene	10¼ 10½	9¾- 9½	- 8¼
CALIFORNIA			
38-40 Water White Kerosene	7 - 8	7½- 8¼	8 - 8¼
NEW ENGLAND			
*40-43 Water White Kerosene	-11¼	-10¼	- 9¼

NEUTRAL OIL

PENNSYLVANIA (Viscosity at 70° F.)			
200 Vis. No. 3 Assoc. Filt.	27½-28	27½-28	27½-28
180 Vis. No. 3 Assoc. Filt.	25½-26	25½-26	-25½
150 Vis. No. 3 Assoc. Filt.	21½-22	21½-22	21½-22
(Non-Viscous)			
34 Grav. 350-360 Flash	8 - 8½	8 - 8½	8 - 8½
36 Miners Neutrals 300-305 Flash	7¼- 7¾	7¼- 7¾	7¼- 7¾
OKLAHOMA (Viscosity at 100° F.)			
100 Vis. No. 2 color	6½- 7½	6½- 7½	6½- 7½
150 Vis. No. 3 color	9½-11	9½-11	9¼-11
150 Vis. No. 4 color	9½- 9¾	9½- 9¾	9½- 9¾
180 Vis. No. 3 color	10¼-10½	10¼-10½	10¼-10½
180 Vis. No. 4 color	10 -10½	10 -10½	10 -10½
180 Vis. No. 5 color	-10¾	-10¾	-10¾
200 Vis. No. 3 color	-11½	-11½	-11½
200 Vis. No. 4 color	11¼-11½	11¼-11½	11¼-11½
200 Vis. No. 5 color	9¾-11¼	9¾-11¼	9¾-11¼
220 Vis. No. 3 color	12 -13	12 -13	12 -13
220 Vis. No. 4 color	13 -13½	13 -13¾	13 -13¾
220 Vis. No. 5 color	-12¾	-12¾	-12¾
240 Vis. No. 3 color	14 -16	14 -16	14 -16
240 Vis. No. 4 color	14¼-14½	14¼-14½	14¼-14½
240 Vis. No. 5 color	-14	-14	-14
280 Vis. No. 3 color	16 -17	16 -17	16 -17
280 Vis. No. 4 color	16¼-16½	16¼-16½	16¼-16½
280 Vis. No. 5 color	15¾-16	15¾-16	15¾-16
300 Vis. No. 5-6 color	17 -18½	17 -18½	17 -18½
GULF COASTAL (Viscosity at 100° F; cold test 0)			
100 Vis. No. 2 Color Unfilt. Pale	7½- 8	7½- 8	7½- 8
200 Vis. No. 3 Color Unfilt. Pale	11½-12	11½-12	11½-12
300 Vis. No. 3 Color Unfilt. Pale	13 -13½	13 -13½	13 -13½
500 Vis. No. 3½ Color Unfilt. Pale	15 -15½	15 -15½	15 -15½
750 Vis. No. 4 Color Unfilt. Pale	19 -20	19 -20	18½-19¼
200 Vis. No. 5½ Color Red Oil	9½-10	9½-10	9½-10
300 Vis. No. 5½ Color Red Oil	11½-12	11½-12	11½-12
500 Vis. No. 6 Color Red Oil	13 -13½	13 -13½	13 -13½
750 Vis. No. 6 Color Red Oil	17 -18	17 -18	17 -18
CALIFORNIA (Viscosity at 100° F.)			
100 Vis. No. 2 color	11 -11½	11 -11½	11 -11½
100 Vis. No. 3 color	8½- 9	8½- 9	8½- 9
200 Vis. No. 3 color	13½-14	13½-14	13½-14
300 Vis. No. 3 color	15 -15½	15 -15½	15 -15½
450 Vis. No. 3½ color	18 -18½	18 -18½	18 -18½
550 Vis. No. 3 color	20 -21	20 -21	20 -21
600 Vis. No. 3½ color	21 -22	21 -22	21 -22
100 Vis. No. 5 color	7 - 7½	7 - 7½	7 - 7½
200 Vis. No. 5 color	12 -12½	12 -12½	12 -12½
300 Vis. No. 5 color	13 -13½	13 -13½	13 -13½
400 Vis. No. 5 color	15 -16	15 -16	15 -16
500 Vis. No. 5 color	16 -17	16 -17	16 -17
600 Vis. No. 6 color	17 -18	17 -18	17 -18
700 Vis. No. 7 color	18 -19	18 -19	18 -19

CYLINDER STOCKS

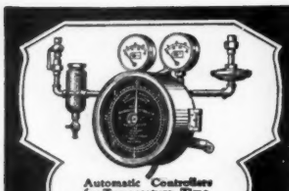
OKLAHOMA			
190-200 Vis. at 210° Bright Stock	31 -35	31 -35	31 -35
150-160 Vis. at 210° Bright Stock	27 -31	27 -31	27 -31
600 E Stock. 140-150 Vis. — 210°	18 -20	18 -20	18 -20
600 Steam Refined Olive Green	8½-11	8½-11	8½-11
600 Steam Refined Dark Green	6½- 7	6½- 7	6½- 7
Black Oil	5 - 6	5 - 6	5 - 6
PENNSYLVANIA (1-inch Immersion Test)			
600 Steam Refined	14½-15	14½-15½	14¾-16
650 Steam Refined	20½-21	21 -21½	21 -21½
600 Flash	24 -25	24 -25½	24 -25
625 Flash Steam Refined	-34	-34	-34
600 Warren E	20½-21	-21	21 -21½
600 Oil City E	19½-20	-20	20 -20½
600 Filtered D	25 -26	25 -26	25 -26
Cold Test Stocks (bright filtered)	38½-40	38½-39	38½-39
Cold Test Stock (dark filtered)	36 -38	36 -37	36 -37

(Note—Prices of total immersion test goods average 1 to 3 cents per gallon higher.)

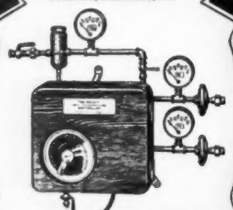
Above prices are f. o. b. refinery in tank car. They are the prices at which the bulk of the products on the open market move. Whoever has knowledge of any open market prices on any considerable quantity of goods differing from the foregoing, will favor us with this information.

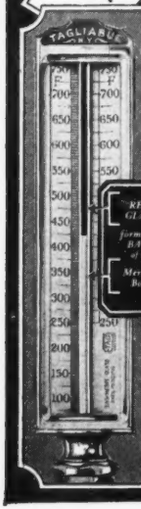
*Only one refiner quoting.

TAG

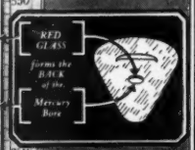


Automatic Controllers for Temperature, Time, Pressure, Humidity, etc.





Insist on Mercury Industrial Thermometers with



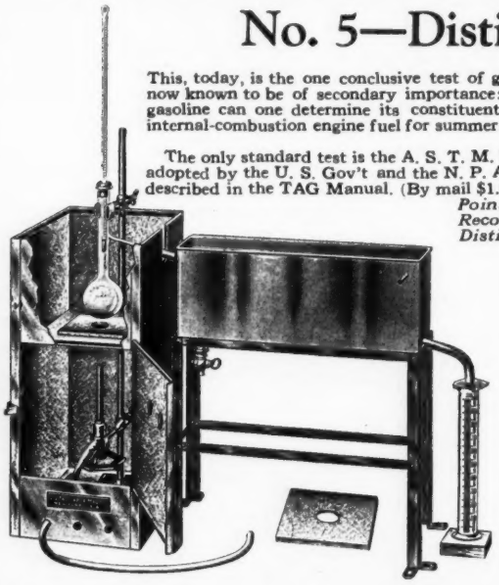
the TAG-HESPE RED Reading Column

One of a series of brief discussions of the standard tests of petroleum products. No. 1 (Gravity) see N. P. N. for March 10; No. 2 (Color) March 24; No. 3 (Viscosity) April 14; No. 4 (Cloud and Pour) April 28.

No. 5—Distillation

This, today, is the one conclusive test of gasoline *quality*. Gravity is now known to be of secondary importance: Only by actually distilling gasoline can one determine its constituents that go to make a good internal-combustion engine fuel for summer or winter.

The only standard test is the A. S. T. M. D86-23T, which has also been adopted by the U. S. Gov't and the N. P. A. The official proceedure is described in the TAG Manual. (By mail $1.00). It gives *Initial Boiling Point, Maximum Temperature, Recovery* (distillate), *Residue* and *Distillation Loss*.

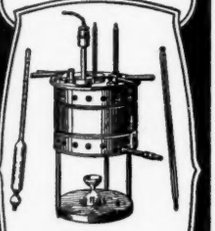


Strictly a laboratory test, Distillation requires the best possible apparatus. With so much at stake, gasoline men and jobbers should not rely on make-shift devices but use the recognized standard—the new TAG-A.S.T.M. Distillation Apparatus, a fine instrument with many conveniences that are worth investigating (Send for TAG Catalog N-699)

Next discussion, "Carbon Residue," in this space May 26.

Recording Thermometers, Pressure Gages, etc.

Dial-Indicating Thermometers



Oil-Testing Instruments, Laboratory Thermometers, Hydrometers etc. etc.

C. J. TAGLIABUE MFG. CO.

18 to 88 Thirty Third St., Brooklyn, N.Y.

BUILT FOR SPEED

TANKS to be mounted on Bus Chassis capable of high speed must be properly designed. No ordinary tank will do for this purpose. Every BROWN CERTIFIED TANK is custom built and without extra charges. Why don't you send for information at once?

BROWN SHEET IRON & STEEL CO. **ST. PAUL, MINN.**

— — — — — — — *Tear out this page and mail it today* — — — — — — —

We are interested in your tanks. Send your catalog and prices.

Make of Truck..... Year..... We operate..... (number) Tank Trucks.

Other equipment on which you may send prices .....

Name..... Address.....

Refinery Markets on Wax and Heavy Oil Products

Pennsylvania, Oklahoma, North and South Texas, Louisiana, Arkansas, California

WAX

PENNSYLVANIA	Prices May 10	Prices May 3	Prices April 26
	(Per Pound, New York)		
122-124 White Crude Scale..	– 5	5 – 5⅛	– 5¼
124-126 White Crude Scale..	– 5⅛	5⅛– 5¼	– 5⅜
OKLAHOMA			
	(Per Pound, Group 3)		
124-126 White Crude Scale..	4¾– 5	– 5	– 5
CALIFORNIA			
White Crude Scale.....	5½– 6	5¾– 6	5¾– 6

FUEL OIL

PENNSYLVANIA			
36-40 Fuel Oil.....	7 – 7¼	6¾– 7	6¾– 7
30-34 Fuel Oil.....	6¼– 6¾	– 6½	6 – 6½
28-30 Fuel Oil.....	6 – 6½	– 6	6 – 6¼
OKLAHOMA			
38-40 Straw distillate.....	4⅛– 4¾	4⅛– 4¾	4⅛– 4⅞
36-38 Straw distillate.....	4⅜– 4½	4⅜– 4½	4⅜– 4½
32-36 Gas oil (Gal.).....	4 – 4¼	4⅛– 4¼	4⅛– 4¼
26-30 Fuel oil (Bbl.).....	1.45 –1.55	1.50 –1.55	1.50 –1.55
24-26 Fuel Oil (Bbl.).....	1.37½–1.40	1.37½–1.42½	1.37½–1.42¼
22-26 Fuel Oil (Bbl.).....	1.30 –1.32½	1.30 –1.35	1.30 –1.35
18-22 Fuel Oil (Bbl.).....	–1.30	–1.30	–1.30
KANSAS*			
38-40 Light straw distillate..	4¼– 5	– 4¾	4¾– 5
36-38 Light straw distillate..	– 4½	– 4½	4½– 4¾
32-36 Gas Oil.....	4⅜– 4½	– 4⅜	4⅜– 4½
18-22 Fuel Oil.....	1.35 –1.40	1.35 –1.40	1.35 –1.40
24-26 Fuel Oil.....	1.50 –1.55	1.45 –1.55	1.45 –1.50
*F. O. B. refinery, Kansas destination.			
NORTH TEXAS			
38-40 Straw Distillate.....	4⅛– 4⅜	4¼– 4⅜	– 4½
32-36 Gas Oil (Gal.).....	3¾– 4	– 4	4 – 4¼
24-26 Fuel per (Bbl.).....	1.30 –1.40	1.37½–1.40	1.40–1.45

GULF COASTAL	Prices May 10	Prices May 3	Prices April 26
Fuel.....	1.55 –1.65	1.55 –1.65	1.55 –1.65
Gas Oil.....	– 5¼	– 5¼	– 5¼
NORTH LOUISIANA			
32-36 Light Gas Oil (Gal.)...	4 – 4¼	4 – 4¼	4¼– 4½
16-20 Fuel Oil (Bbl.).....	1.20–1.25	1.20 –1.25	–1.20
ARKANSAS			
32-36 Gas Oil.....	4¼– 4½	– 4½	– 4½
Smackover Crude Fuel.....	1.12½–1.20	1.10 –1.17½	1.10 –1.12½
Road oil.....	–1.26	–1.26	–1.26
CALIFORNIA*			
14-18 Fuel Oil (Bbl.).....	1.00	1.00	1.00
14-18 Bunker Oil (Bbl.).....	1.00	1.00	1.00
24-30 Gas Oil (Bbl.).....	1.15	1.15	1.15
27 + Diesel Oil (Bbl.).....	1.15	1.15	1.15
*(San Joaquin Valley, San Francisco 4c per bbl. more.)			
NEW ENGLAND			
	(F. O. B. Boston and Fall River)		
30-32 Gas Oil (Gal.).....	5¾– 5¾	– 5¾	– 5¾
Fuel Oil (Bunker C) Bbl....	–1.82½	–1.82½	–1.82½

PETROLATUMS

PENNSYLVANIA			
Snow White.....	–11	–11	–11
Lily White.....	– 9½	– 9½	– 9½
Cream White.....	– 6¾	– 6¾	– 6¾
Light Amber.....	– 3¾	– 3¾	– 3¾
Amber.....	– 3½	– 3½	– 3½
Red.....	– 3¼	– 3¼	– 3¼
Green.....	1¾– 2	1¾– 2	1¾– 2

Above prices are f. o. b. refinery in tank car. They are the prices at which the bulk of the products on the open market move. Whoever has knowledge of any open market prices on any considerable quantity of goods differing from the foregoing, will favor us with this information.

(Continued from Page 113)

refiner in Oklahoma circulated an offer to sell a quantity of 58-60, 437 e. p. gasoline ¼ to ½ cent under the market, because his goods did not meet all U. S. Motor specifications.

Texas Prices Readjusted

READJUSTMENT of tank wagon prices in Texas with the prospect that the price wars which have been raging at various points would be ended, helped that market somewhat.

The price war has been hard on the jobber in Texas. The average net price was 14 cents a gallon, and with gasoline at 11 cents, it was costing him 14½ cents a gallon including tax.

An inquiry was widely circulated late last week and the first part of this week for quotations on 60-62, 400 e. p. gasoline for export shipment. It developed later, however, that the inquiry was sent out primarily to satisfy one company as to the actual market on that grade, and not with a view to purchasing.

A contract for shipment of a small quantity of 60-62 gasoline monthly for a year was made this week between a large Oklahoma refiner and the New Orleans Refining Co. The latter company has been purchasing a large quantity of 60-62 gasoline this year, both on contracts and on the open market.

No inquiries were reported for export grade 64-66, 375 e. p. gasoline, and the domestic market was so sluggish that little was sold this week. Refiners' quotations ranged widely.

Natural Gasolines Softer

NATURAL gasolines have not received sufficient buying support to warrant a market which the larger manufacturers attempted to estabish when straight run gasolines strengthened. As a result prices became softer in the last day or two. Grades A and AA were especially hard to move for prompt shipment, but inquiries were numerous for over-the-month purchases. Manufacturers generally refused, however, to sell that far ahead. Grades B and BB were slightly more in demand, while Grade C was the most active as the week closed.

Several predictions were heard that Grades A and AA would slip off while Grades B and BB and C would slowly climb until all will be on the same price level before the end of May.

In spite of slightly increased production of kerosene in the Mid-Continent, demand is still so far ahead of the supply that spot prices are being governed almost entirely on how badly a purchaser needs the oil.

One refiner in Oklahoma said Saturday he had sold a car or two of 41-43 water white kerosene at 10¼ cents for immediate shipment, and that his goods were going only to certain customers.

Another refiner declared he had had jobber inquiries from practically every point in the consuming territory. In addition to the scarcity of kerosene, buyers that bought for deferred shipment, are having difficulty in some instances in getting it shipped.

Kerosene production, however, continues to increase. One refinery in Texas which has not been making kerosene for several months, will have at least 15 cars to offer during May. Another large refinery which has been turning out normally only five cars a day now is producing 15 cars a day.

Virtually every refiner reports being oversold on kerosene, and several are known to have booked their entire output even past June 15.

Distillates are draggy, but scarcity of goods is holding prices well in line. Gas oil is softer, especially in Texas. The demand in Arkansas and Louisiana also has slowed up considerably.

Fuel Oils Slow

FUEL oils are slow but movement is in sufficient volume to enable refiners to hold their prices for spot material. Offers of lower prices for fuel oil for shipment over the remainder of the month, however, are reported by several buyers.

The monthly purchases by industrial and railroad companies in Texas firmed the fuel oil market slightly the first of the week, but the demand slipped off considerably, later in the week.

Cylinder and neutral oils are steady and unchanged. One large refiner said today that in March and April his trade in these oils was the best he had ever experienced. Other refiners say their business has been about normal. Wax is easier at 4¾ to 5 cents.

Kerosene Activity Again Features Chicago Resale Market

Staff Special
CHICAGO, May 8

KEROSENE activity again featured the Chicago resale market this week. A few facts regarding kerosene prices are most interesting. Tank wagon prices have advanced 2½ cents in less than one month in Standard Oil Co. of Indiana territory. The prevailing tank car price for 41-43 water white kerosene at the close of the first week in May is only from 1 to 1¼ cents under the tank car prices for 58-60 U. S. Motor gasoline. Jobbers who have 58-60, 450 end point gasoline coming through on old orders at 10¼ cents are now having to pay as much for 41-43 kerosene.

Refiners and marketers quickly absorbed the ½-cent advance made in tank wagon price by the Indiana company on May 6; tank car prices shot up to 10 cents immediately. Sales today are being made at as high as 10¼ cent with 10 cents still included in the going price range. Finding goods is no easy task and getting it shipped after finding it is a still harder one. Considerable low priced Pennsylvania kerosene has been moving into Michigan and Ohio points.

A Chicago marketer today sold an Oklahoma refiner five cars of 41-43 w.w. kerosene at 9⅞ cents, Texas. It is generally believed that prices have little chance of slumping until dealers behind on shipments at present are caught. It is estimated that scarcity will continue for two or three weeks.

Although gasoline movement had been slow since the beginning of the week, prices showed no signs of easing off until late in the week. A softening apparent in Group 3, Thursday was reflected in Chicago, Friday. Motor gasoline held firm at 11½ cents up until this time; considerable 11¼ cent gasoline was being offered Saturday.

A large Chicago industrial user on Friday paid 11 cents for 25 cars of 58-60, 450 end point gasoline for deferred shipment and on Saturday purchased 15 cars for immediate at 10½ cents. In the latter instance the seller needed immediate instructions and sacrificed the gasoline at ¼ cent under the prevailing spot price.

Odd lots of 58-60 U. S. Motor gasoline also are being purchased in Group 3 at prices a shade under those above quoted; one marketer today obtained 5 cars for immediate shipment at 11 cents.

A careful survey of sales this week showed that approximately 65 per cent of the 58-60 gasoline moving through Chicago has had 450 end point; the 437 end point grade has been in little demand.

As far as motoring weather is concerned, May so far has proved itself to be a banner month. Rainy periods through the Middle West have been few. The Weather Man also promises another good week of motoring weather; short periods of showers will prevail at the beginning and again near the end of the coming week. Temperatures for the week will average normal or above.

Distillate becomes less of a market factor each day. The 38-40 gravity straw color distillate is available from marketers at 4½ cents; refiners are holding for 4¾ cents. Demand for straight run gas oil to crack continues good; this class of oil is bringing 4¼ to 4⅜ cents whereas ordinary gas oil is available at 4 to 4⅛ cents.

Fuel oil demand eased off this week but prices show no material change. The 16-18 gravity fuel is held at $1.27½ to $1.30 and 22-26 at $1.30 to $1.35. Practically no 18-22 fuel oil is available. Smackover crude fuel held fairly firm over the week at $1.12½ to $1.15 but on Saturday it was available at $1.10.

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Week's Price Changes Tank Wagon Markets

Gasoline Changes

Magnolia Petroleum—T.w. and s.s. prices gasoline advanced 1 cent in Oklahoma, **May 7,** with Magnolia really posting one price of 19 cents as its service station and tank wagon price, with 3 cents off to contract customers who resell.

T.w. and s.s. prices gasoline advanced 2 cents generally in Texas, **May 5,** excepting at points previously out of line with common point markets where a sufficient advance was made to put those points on a level with rest of the state. Houston was advanced 3 cents; Fort Worth, 5 cents; Waco, 4 cents. T.w. and s.s. prices at common points are 19 cents, with 3 cents spread for customers who resell, same as in Oklahoma.

T.w. and s.s. prices gasoline at San Antonio advanced 2 cents, to 17 cents, **April 28.**

Canada—T.w. and s.s. prices gasoline advanced 1 cent generally through Canada, **May 5.** S.s. price at Cochrane was advanced 4 cents, to 42 cents. Ottawa remained unchanged.

Gasoline tax in Prince Edward Island was advanced 1 cent, to 3 cents, and tank wagon table in this week's issue shows 2 cents advance on gasoline prices including the 3 cent tax.

Kerosene Changes

Standard of New Jersey—T.w. and s.s. prices kerosene advanced ½ cent, through territory, **May 10.**

Standard of Ohio—**T.w. and s.s. prices** kerosene advanced 1 cent, through Ohio, **May 8.**

Standard of Indiana—T.w. and s.s. prices kerosene advanced ½ cent, through territory, **May 6.**

Standard of Nebraska—T.w. and s.s. prices kerosene advanced ½ cent, through Nebraska, **May 7.**

Magnolia Petroleum—T.w. and s.s. prices kerosene advanced 2 cents, Oklahoma, **May 7.**

Continental Oil—T.w. and s.s. prices kerosene advanced ½ cent, Denver, Pueblo, Casper, Cheyenne, Helena and Albuquerque, and 1 cent at Butte, **May 8.**

Canada—T.w. and s.s. prices kerosene advanced 1 cent generally, through Canada, **May 5.** Some points remained unchanged, while some were advanced ½ cent, a few points 1½ cents and a few 3 cents. Kerosene at New Brunswick, Nova Scotia and Prince Edward Island points that are carried in accompanying tank wagon table, were unchanged.

Ottawa and Cochrane were advanced ½ cent; Toronto and Three Rivers 1½ cents and Montreal and Quebec City, 3 cents. Other points in the accompanying table, advanced 1 cent.

MONETT, MO.—F. J. Rooney, 306 Central St., Monett, distributor for The Texas Co., Houston, will erect bulk station here, which will be open for business by June 1.

Tank Wagon, Service Station Markets for Gasoline and Kerosene In United States Territories and Canada

These Prices in Effect May 10, 1926

S.O. NEW JERSEY TERRITORY

	Gasoline T.W.	Tax	Total T. W.	S.S.	Oil T.W.
Atlantic City, N. J.	18	0	18	*	16
Newark, N. J.	18	0	18	20	16
Annapolis, Md.	18	2	20	*	16
Baltimore, Md.	18	2	20	23	16
Cumberland, Md.	18	2	20	23	16
Washington, D. C.	18	2	20	23	15
Danville, Va.	18	4½	22.5	*	16
Norfolk, Va.	18	4½	22.5	25.5	16
Richmond, Va.	18	4½	22.5	25.5	16
Roanoke, Va.	18	4½	22.5	25.5	16
Petersburg, Va.	18	4½	22.5	*	16
Williamsburg, Va.	18	4½	22.5	*	16
Charleston, W. Va.	18	3½	21.5	24.5	16
Clarksburg, W. Va.	18	3½	21.5	24.5	16
Keyser, W. Va.	18	3½	21.5	*	16
Parkersburg, W. Va.	18	3½	21.5	24.5	16
Wheeling, W. Va.	18	3½	21.5	24.5	16
Charlotte, N. C.	18.5	4	22.5	25.5	16
Hickory, N. C.	18.5	4	22.5	*	16
High Point, N. C.	18.5	4	22.5	*	16
Mt. Airy, N. C.	18.5	4	22.5	*	16
Salisbury, N. C.	18.5	4	22.5	*	16
Charleston, S. C.	18.5	5	23.5	26.5	16
Columbia, S. C.	18.5	5	23.5	26.5	16

*Dealers set own prices. S. O. New Jersey does not operate station

S. O. NEW YORK

*New York City	20	0	20	24	17
Albany, N. Y.	20	0	20	22	17
Buffalo N. Y.	19	0	19	22	17
Rochester, N. Y.	20	0	20	24	15
Syracuse, N. Y.	20	0	20	22	16
Boston, Mass.	20	0	20	23	17
Augusta, Me.	20	3	23	26	17
Manchester, N. H.	20	2	22	26	17
Burlington, Vt.	20	2	22	24	17

*In steel barrels.

ATLANTIC REFINING

Pittsburgh, Pa.	19	0	19	*24	16
Philadelphia, Pa.	19	0	19	*24	16
Allentown, Pa.	19	0	19	*24	16
Erie, Pa	17	0	17	*22	14
Scranton, Pa.	19	0	19	*24	16
Altoona, Pa.	19	0	19	*24	16
Dover, Del.	19	2	21	24	16
Wilmington, Del.	19	2	21	24	16
Providence, R. I.	20	1	21	23	17
Boston, Mass.	20	0	20	23	17
Springfield, Mass.	20	0	20	22	17
Worcester, Mass.	20	0	20	23	17
Hartford, Conn.	20	2	22	25	16
New Haven, Conn.	20	2	22	25	17

*Contains 2-cent tax collected by retail dealer and paid by him directly to state.

S. O. KENTUCKY

Lexington, Ky.	18	5	23	26	17
Louisville, Ky.	19	5	24	27	16
Covington, Ky.	18	5	23	26	17
Clarksdale, Miss.	18	4	22	25	15.5
Jackson, Miss.	18	4	22	25	14.5
Natchez, Miss.	17.5	4	21.5	24.5	15
Vicksburg, Miss.	17.5	4	21.5	24.5	15
Birmingham, Ala.	19	2	21	24	17.5
Mobile, Ala.	18	2	20	23	16
Montgomery, Ala*	20	2	22	25	18.5
Atlanta, Ga.	†20	3½	24	27	18
Augusta, Ga.	†20	3½	24	27	18
Macon, Ga.	†20	3½	24	27	18
Savannah, Ga.	†17	3½	21	24	16
Jacksonville, Fla.	18	4	22	25	16
Miami, Fla.	20	4	24	27	17.5
Tampa, Fla.	18	4	22	25	16
Pensacola, Fla.	16	4	20	22	16.5

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included.

†Georgia has ½ cent per gal. inspection fee on gasoline which is deducted as well as the state gasoline road tax of 3½ cents, to get the actual net tank wagon market to dealer.

S. O. INDIANA

	Gasoline T.W.	Tax	Total T. W.	S.S.	Oil T.W.
Chicago, Ill.	†18	0	†18	20	14.5
Decatur, Ill.	18.2	0	18.2	20.2	15
E. St. Louis, Ill.	17.1	0	17.1	19.35	14.1
Joliet, Ill	18.4	0	18.4	20.4	15.2
Peoria, Ill.	18.2	0	18.2	20.2	15
Quincy, Ill.	18.2	0	18.2	20.2	14.8
Indianapolis, Ind.	18.2	3	21.2	23.2	15.2
Evansville, Ind	18	3	21	23	15
South Bend, Ind.	18.4	3	21.4	23.4	15.4
Detroit, Mich.	18.8	2	20.8	22.8	15.7
Grand Rapids, Mich.	18.7	2	20.7	22.7	15.6
Saginaw, Mich.	18.9	2	20.9	22.9	15.8
Madison, Wis.	18.3	2	20.3	22.3	15
Milwaukee Wis.	18.1	2	20.1	22.1	14.8
La Crosse, Wis.	19.2	2	21.2	23.2	15.9
Minneapolis Minn.	19.2	2	21.2	23.2	16.1
Duluth Minn.	19.5	2	21.5	23.5	16.1
Mankato Minn.	19.1	2	21.1	23.1	15.9
De Moines Iowa.	18.5	2	20.5	22.5	15.4
Davenport Iowa.	18.5	2	20.5	22.5	15.4
Sioux City, Iowa.	18	2	20	22	15
Mason City, Ia.	18.5	2	20.5	22.5	15.4
St. Louis, Mo.	*17.6	2	19.6	21.9	14.5
Kansas City, Mo.	††18.9	2	20.9	22.9	13.8
St. Joseph, Mo.	*18	2	20	22	14.4
Fargo, N. D.	20.9	1	21.9	23.9	18.1
Grand Forks, N. D.	21.2	1	22.2	24.2	18.4
Minot, N. D.	20.9	1	21.9	23.9	18.1
Pierre, S. D.	20	3	23	25	16.6
Huron, S. D.	20	3	23	25	16.6
Wichita, Kans.	16.8	2	18.8	20.8	14.3
Bartlesville, Okla.	16.8	3	19.8	21.8	14.3

†Dumps of 100 or more gallons at 17c per gallon.
*Includes city tax of ½c.
††Includes city tax of 1c.

S. O. NEBRASKA

Crawford, Neb.	19	2	21	*	15.75
Omaha, Neb.	18.25	2	20.25	22.25	15
McCook	19.75	2	21.75	23.75	16.5
Norfolk	18.75	2	20.75	22.75	15.5
North Platte	19.75	2	21.75	23.75	16.25
Scottsbluff	19.25	2	21.25	23.25	15.75

*Standard has no service station here.

CONTINENTAL OIL

Denver, Colo.	19	2	21	21	18
Pueblo, Colo.	19	2	21	23	18
Casper, Wyo.	19	2½	21.5	23.5	16.5
Cheyenne, Wyo.	20	2½	22.5	24.5	18
Butte, Mont.	22	2	24	24	20
Helena, Mont.	24	2	26	28	20.5
Salt Lake City, Utah.	22.5	3½	26	28	19
Boise, Ida.	24	3	27	29	21
Albuquerque, N.M.	22.5	3	25.5	28.5	20

S. O. CALIFORNIA

Phoenix, Ariz.	22	3	25	28	21.5
Los Angeles, Cal.	14.5	2	16.5	20.5	15.5
Fresno, Cal.	16.5	2	18.5	22.5	17.5
San Francisco, Cal.	16	2	18	22	15.5
Reno, Nev.	19.5	4	23.5	27.5	19
Portland, Ore.	16	3	19	23	16.5
Seattle, Wash.	16	2	18	22	16.5
Spokane, Wash.	20	2	22	26	20.5
Tacoma, Wash.	16	2	18	22	16.5

S. O. LOUISIANA

Little Rock, Ark.	16	4	20	23	15
Alexandria, La.	16	2	18	21	15
Baton Rouge, La.	15	2	17	20	13.5
Lake Charles, La.	16.5	2	18.5	21.5	15
New Orleans, La.	*16.5	2	18.5	21.5	14
Shreveport, La.	15	2	17	20	14
Lafayette, La.	16	2	18	21	14.5
Bristol, Tenn.	19.5	3	22.5	25.5	16.5
Chattanooga, Tenn.	19	3	22	25	16.5
Knoxville, Tenn.	19	3	22	25	17
Nashville, Tenn.	18	3	21	24	17
Memphis, Tenn.	17	3	20	23	16

*Includes 1c city tax on gasoline and kerosene.

S. O. OHIO

	Gasoline T.W.	Tax	Total T. W.	S.S.	Oil T.W.
All Ohio points	19	2	21	23	16

MAGNOLIA PETROLEUM

Muskogee, Okla.	15	3	18	21	15
Oklahoma City	15	3	18	21	15
Tulsa, Okla.	16	3	†19	22	15
Fort Smith, Ark.	16	4	20	23	15
Little Rock, Ark.	16	4	20	23	15
Texarkana, Ark*	17	4	21	24	13.5
Dallas, Tex.	15	1	16	19	13
El Paso, Tex.	18	1	19	19	14
Fort Worth, Tex.	18	1	19	20	13
Houston, Tex.	18	1	19	21	13
San Antonio, Tex.	18	1	19	19	13

*Within city of Texarkana, Ark., the state tax on gasoline is 1c per gal. conforming with the Texas state tax. In Texarkana district outside of the city the 4c state tax applies.

†19c to regular power trade, 21c to all other tank wagon consumers.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline)

	Oleum Spirits	V.M.&P. Naphtha	Cleaners Naphtha
Chicago	19	21	21
Detroit	20.2	22.7	22.7
Kansas City	19.2	21.2	21.2
Milwaukee	19.2	23.7*	23.7
Minneapolis	20.5	25*	25*
St. Louis	18.4	20.9	22.2
New York		21	

*Including state tax.

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

ONTARIO

	Gasoline T.W.	Tax	Total	S.S.	Oil T.W.
Toronto	25.5	3	28.5	32	23
Ottawa	25.5	3	28.5	32	23
Cochrane	30.5	3	33.5	42	26.5
Ft. William	28.5	3	31.5	36	24.5

MANITOBA

Winnipeg	28.5	3	31.5	35	24.5

SASKATCHEWAN

Regina	30.5	0	30.5	35	26.5

ALBERTA

Edmonton	32.5	2	34.5	38	28.5
Calgary	30.5	2	32.5	36	26.5

BRITISH COLUMBIA

Vancouver	24	3	27	31	24

QUEBEC

Montreal	25.5	3	28.5	32	23
Quebec City	27.5	3	30.5	34	25
Three Rivers	27.5	3	30.5	34	25

NEW BRUNSWICK

St. John	28.5	3	31.5	35	26.5
Moncton	28.5	3	31.5	35	26.5

NOVA SCOTIA

Halifax	28.5	3	31.5	35	24.5
Sydney	30.5	3	33.5	34	26.5

PRINCE EDWARD ISLAND

Charlottetown	28.5	3	31.5	35	24.5

Note: In districts surrounding these points 1c additional is added to city price.

British Strike Expected to Increase Export Fuel and Gasoline Buying

By Special Correspondent
NEW YORK, May 10

EXPORT buying interest was keener last week. A French buyer was credited with the purchase of a cargo of U. S. Motor and 64-66 gasoline and prime white kerosene for June shipment. Two other good sized bulk movements were reported. Gasoline held firm in the Gulf. Kerosene was stronger than expected.

Gas oil is firm and is being offered sparingly. Waxes are tending lower. Gulf lubricants were soft. The demand for Bunker oil is slightly more spirited, attributed partly to the United Kingdom coal strike.

Export Gasoline—New York

United Kingdom buyers were inquiring for two cargoes of gasoline for June shipment. One of these called for 45,000 barrels of U. S. Motor and 64-66 375 end point and the other for 50,000 barrels of U. S. Motor and 61-63 gravity. New York factors believe big British marketers will be forced into buying large quantities of gasoline soon because the strike has brought more motor vehicles into use.

A French buyer was inquiring for 42,000 barrels of U. S. Motor and 61-63 380 e. p. gasoline for nearby shipment. It is expected a big Independent will close this shortly.

Cased gasoline was well maintained but no price changes were reported. There is a steady movement against standing contracts. One of the smaller exporters sold 15,000 cases of gasoline for nearby shipment to the Levant.

Gasoline—Gulf Ports

Export demand for gasoline has improved. A leading refiner is reported to have sold a cargo of 50,000 barrels of U. S. Motor at 11½ cents, 64-66 375 e. p. at 14½ cents and prime white kerosene at 7¾ cents a gallon for June shipment to France. Another Independent is reported to have sold 45,000 barrels of U. S. Motor and prime and water white kerosene for nearby shipment to the Continent at 12, 7¾ and 8¾ cents, respectively.

Cased gasoline demand was better and a large Independent expects to book an order for 50,000 cases for nearby shipment to the Near East. U. S. Motor is now quoted at $2.25 to $2.30 a case in cargo lots and 64-66 is held at $2.50 a case in cargoes.

Domestic Gasoline—New York

Jobbing demand for gasoline has improved steadily and U. S. Motor is firm at 13¼ to 13½ cents a gallon in bulk at the refineries and 14¼ to 14½ cents a gallon in tank cars delivered to the trade. Comparatively little is being offered at the inside prices. There is a persistent report of an impending advance in eastern tank wagon prices. Consumption is larger than expected, and supplies are somewhat low. California gasoline is quoted at 13 cents a gallon in tankers f. o. b. New York.

Domestic Gasoline—Gulf Ports

At Gulf refineries U. S. Motor is firmly held at 12 cents a gallon, in fact some refiners are asking 12¼ to 12½ cents a gallon. Jobbing demand is gaining, reflecting a steady increase in consumption. Refiners are offering more sparingly owing to improved export demand. Tank wagon prices are tending higher.

Export Kerosene—New York

Export demand for kerosene is better than expected. Prices are firmly maintained along the Atlantic seaboard. A Continental buyer was inquiring for a cargo of 30,000 barrels of U. S. Motor, prime and water white kerosene for May shipment. Water white is held at 10½ cents a gallon at New York harbor refineries and prime white is almost unobtainable below 9¾ cents a gallon at refineries.

Cased kerosene demand is a little more active and a South American buyer is reported to have purchased 20,000 cases from a local Independent for May-June shipment.

Export Kerosene—Gulf Ports

Prices were firmly maintained and at the end of the week all of the big refiners were asking 7 cents for prime and 8 cents a gallon for water white in bulk, but on a firm bid these prices could probably have been shaded a trifle according to keen observers.

Cased kerosene demand has improved a little and an Independent has booked an order for 35,000 cases of prime and water white kerosene for June shipment presumably to China.

Domestic Kerosene

Sinclair Refining Co. on May 6 advanced the price of bulk, water white kerosene ½ cent a gallon to 10½ cents a gallon in tank cars at New York and Philadelphia and all other Atlantic seaboard terminals. In tank cars delivered to the trade water white was held at 11½ cents and prime white 10¾ cents a gallon.

Lubricants—New York

Export demand for lubricating oils was disappointing. The unfavorable labor conditions in the United Kingdom have tended to discourage buying from that source. French consumers are purchasing in lots of a few hundred barrels for immediate consumption only. Big exporters appear more inclined to make concessions.

Pennsylvania 600 steam refined cylinder oil in barrels, New York, is freely offered at 22 cents a gallon, with rumors current that this price can be shaded a trifle on a firm bid. The demand for spindle oil is also lighter. Demand for paraffin oils is disappointing, although domestic consumption is slightly larger.

Lubricants—Gulf Ports

The demand from abroad is still disappointing although a rumor was current that a large Independent sold a cargo of 30,000 barrels of Gulf Coast lubricants for nearby shipment at further concessions. Prices for most of these oils appear largely nominal and easily shaded. Domestic demand is a little better but not good enough to strengthen the market. English buyers have been purchasing little or nothing of late.

Waxes—New York

The export demand for paraffin waxes continued sluggish last week, and some local factors are predicting slight declines soon. European buyers' ideas are still a little below sellers'. Domestic demand was also sluggish being confined to a few tons for immediate delivery. White crude scale 122-124 A. m. p. was still held at 5⅛ cents and semi-refined 122-124 A. m. p. was held at 5¼ cents. Match wax ruled dull at 6 cents. The movement in fully refined grades was also very small and 120-122 A. m. p. was freely offered at 6 cents a pound without attracting many buyers. Other grades were held at 6⅛ cents for 125-127 A. m. p.; 6¼ cents for 128-130 A. m. p.; 6⅜ cents for 130-132 A. m. p.; 6⅝ cents for 133-135 A. m. p., and 6⅞ cents for 135-137 A. m. p.

Bunker Oil—New York

New York exporters are looking for a much heavier export movement in bunker oil owing to the British strike. Local demand is still fairly good. Grade C is held at $1.75 a barrel at the refineries, and $1.81½ a barrel f. a. s. New York harbor. Diesel oil demand was good and the price was well held at $2.41½ a barrel. There was an inquiry in the market for 40,000 barrels of grade C bunker oil but details were withheld.

Bunker Oil—Gulf Ports

The market held steady. Domestic demand and consumption are large but as yet no export buying of consequence has been located. For bunkering purposes grade C was quoted at $1.60 a barrel f. o. b. New Orleans, while in cargo lots the price ranged around $1.40 to $1.45 a barrel, although no offerings were re-

ported at the inside price. At Tampico grade C was quoted $1.50 for bunkering, including taxes, while in cargoes the price was nominal at $1.40 to $1.45 a barrel including taxes. Heavy Panuco crude oil was firmly held at $1.20 a barrel, f. o. b. Tampico, taxes to be added.

Gas Oil—New York

Demand for gas oil continued active, but offerings were smaller and 36-40 was firmly maintained at 6½ cents a gallon, bulk, refinery. Strength in gasoline has brought about heavy cracking, and refiners are not disposed to offer far ahead. For 28-34 the asking price is 5½ cents a gallon in bulk at refinery. Export inquiries are more numerous and one of the leading Independents is working on an inquiry from France for 35,000 barrels, for nearby shipment.

Gas Oil—Gulf Ports

Demand for 26-28 red transparent gas oil is more active but offerings are small and no bulk movements were disclosed. A United Kingdom buyer was inquiring for 40,000 barrels for May shipment, but whether this was booked or not was not made known. For 26-28 the price was firmer at 5¼ to 5½ cents a gallon, while 32 plus dark gas oil is in slightly better demand at 5 cents a gallon.

Petrolatums

Demand for snow white is a little more active and prices are steady. Export buying, however, is still hand-to-mouth.

British Importations

During the week ended April 3rd importations of petroleum into the United Kingdom aggregated 19,496,875 gallons, Larger receipts were:

Consignee	Imperial Gallons	Product	Port of Origin
London:—			
Brit-Mex. Pet...	920,000	Fuel Oil	Curacao
Atlas Transp....	116,760	Lubes	N. Orleans
Liverpool:—			
Vacuum Oil.....	393,742	Lubes	Phila.
Grimsby:—			
Major & Co.....1	,114,262	Gasoline	N. Orleans
Manchester:—			
Lube Producers..	639,450	Lubes	P. Mexico
Swansea:—			
Natl. Oil Ref....2	,447,010	Crude	Abadan
Glasgow:—			
Brit-Mex. Pet...	294,594	Gasoline	San Pedro

During the week ended April 12th, importations of petroleum into the United Kingdom aggregated 25,051,901 gallons. Larger receipts were:

Consignee	Imperial Gallons	Product	Port of Origin
Liverpool:—			
Natl. Benzol....1	,800,000	Gasoline	Los Angeles
Manchester:—			
Brit-Mex.....	102,603	Gasoline	San Pedro
Swansea:—			
Natl. Oil Ref....2	,477,770	Crude	Abadan
Natl. Oil Ref....2	,438,265	Crude	Abadan
Grangemouth:—			
Scottish Oils....	166,061	Crude	Abadan
Scottish Oils....	147,064	Crude	Abadan
Scottish Oils....	146,917	Crude	Abadan
Scottish Oils.....	142,214	Crude	Abadan
Scottish Oils....	150,040	Crude	Abadan
Scottish Oils....	149,576	Crude	Abadan
Scottish Oils....	150,710	Crude	Abadan
Scottish Oils....	152,363	Crude	Abadan
Scottish Oils....	151,282	Crude	Abadan
Scottish Oils....2	,525,019	Crude	Abadan
Scottish Oils....2	,418,392	Crude	Abadan
Scottish Oils....2	,392,548	Crude	Abadan

Complete Export Markets

New York Export Market

GASOLINE	May 10	May 3
U. S. Motor Tank cars Ref.....	13½	–13½
U. S. Motor cases.....	28.90	–28.90
California grade U. S. Motor F. O. B. N. Y. Bulk.....	13	–13
KEROSENE		
41-43-150 W. W. Tank cars Ref..	10½	–10½
41-43-150 W. W. Cases.....	19.65	–19.65
42-44-110 S. W. Cases.....	18.40	–18.40
GAS OIL		
36-40, Bulk Refinery.....	–06½	–06½
28-34, Bulf Refinery.....	–05¾	–05¾
MEXICAN BUNKER OIL		
Grade C, f. o. b. ref. Bulk.....	1.75	– 1.75
Diesel Oil f. o. b. ref. Bulk.....	2.41½	– 2.41½

LUBRICATING OILS

The following prices are cooperage basis f. o. b. New York, products being manufactured by inland refineries.

CYLINDER OILS (Bbls.) 1 inch Immersion Test; All Penna. Products		
Filtered D 600.....	29½	–30
Filtered E 600.....	28	–29
Unfiltered 600 s. r.....	22	–22½
Unfiltered 650 s. r.....	28½	–29
600 flash s. r.....	29	–30
630 Flash.....	41	–41
RED PARAFFIN (Bbls.) (Viscosity at 70)		
300 vis.....No. 5 color	21	–21
250 vis.....No. 5 color	20	–20
High Viscosity.....No. 5 color	25	–25
NEUTRAL OILS (Bbls.) (Viscosity at 70)		
200 vis. at F. Pale...No. 3 color	–31	–31
180 Pale.....No. 3 color	–29	–29
150 Pale.....No. 3 color	–24½	–24½
BLACK OIL (Bbls.)		
25-30 cold test.....	13	–13
15 cold test.....	14¾	–14¾

MEDICINAL OILS (Includes Price of Drums) (Penna. Stocks)

	May 10	May 3
Domestic 875-.885 s. g.....	1.00–1.08	1.00–1.08
Domestic 865-.870 s. g.....	.75– .80	.75– .80
Russian 885-.890 s. g. 325-350 vis.....	1.20–1.25	1.20–1.25

WAXES (Penna. Stocks) (F. A. S. Carload Lots)

WHITE CRUDE SCALE		
122-124 A. m. p.....	–05¾	–05¾
124-126 A. m. p.....	–05¾	–05¾
MATCH		
105-108 A. m. p.....	–06	–06
FULLY REFINED		
120-122 A. m. p.....	–06	–06
123-125 A. m. p. Philadelphia..	–06	–06
125-127 A. m. p.....	–06½	–06½
128-130 A. m. p.....	–06¼	–06¼
130-132 A. m. p.....	–06¾	–06¾
133-135 A. m. p.....	–06¾	–06¾
135-137 A. m. p.....	–06¾ 07	–06¾–07
SEMI REFINED		
122-124 A. m. p.....	–05¾	–05¾
YELLOW CRUDE SCALE		
124-126 A. m. p.....	–05	–05

PETROLATUMS (Penna. Stocks) Per Pound

Dark Green.....	03	03
Veterinary.....	03¼	03¼
Light Amber.....	03¾	03¾
Dark Amber.....	03¾	03¾
Cream.....	06¾	06¾
Lily White.....	08½	08½
Snow White.....	11¾–11½	11¾–11½

Gulf Export Market

GASOLINE
F. O. B. Seaboard
Shipments of 20,000 Bbls. and over

	May 10	May 3
U. S. Motor, Cargo.....	12	–.12
60-62 400 e. p. Bulk.....	13¾	–.13¾
64-66 375 e. p. Bulk.....	15	–.15
U. S. Motor, Cases (cargo lots)	2.25	2.20
64-66, Cases (cargo lots).....	2.50	2.45
KEROSENE		
Water White, 41-43 bulk....09	08¾–09	
Prime White, 42-44 bulk....08	07¾–08	
Water White, cases (cargo lots) 1.90	–1.85	
Prime White, cases (cargo lots) 1.80	.1.75	
DOMESTIC GAS AND BUNKER OIL		
26-28, gravity, bulk*.....05¾–05½	05¾–05½	
32 plus, bulk, Dark.....05	–05	
Grade C, Bunker oil.....1.60	–1.60	
Cargoes.....1.45	–1.45	

*Transparent through neck of a 4 oz. bottle.

MEXICAN CRUDE AND BUNKER OILS
F. O. B. Steamer Tampico

Heavy, Taxes to be added.....1.20	–1.18	
Grade C, Bunker oil Taxes paid.....1.40–1.45	1.40–1.45	
Grade C, Bunker oil F. O. B. New Orleans.....1.55	–1.60	

SOUTH TEXAS
(Viscosity at 100°F; cold test 0)
(Tanker, F. O. B. Houston)

*LUBRICATING OILS	May 10	May 3
100 Vis. No. 2 Unfiltered Pale....	07	07
150 Vis. No. 2½ Unfiltered Pale..	09	09
200 Vis. No. 3 Unfiltered Pale....	11	11
300 Vis. No. 3 Unfiltered Pale....	13	13
500 Vis. No. 3½ Unfiltered Pale..	12	12
200 Vis. No. 5½ Red Oil.....	11	11
300 Vis. No. 5½ Red Oil.....	12	12
500 Vis. No. 6 Red Oil.....	13½	13½
800 Vis. No. 6 Red Oil.....	16	16

*These prices are entirely nominal owing to wide fluctuations.

Pacific Export Market

(Cargo lots quotations at seaboard, Los Angeles)

	May 10	May 3
Gasoline, U. S. Motor— 54°-56°.....11	–11¼	11 –11¼
Gasoline, U. S. Motor— blends and special cuts....	11¼–11½	11¼–11½
Gas Oil, 24°—30°B. per bbl.....	$1.15	$1.15
Diesel Oil, 27°B—plus per bbl.....	$1.15	$1.15
Bunker Oil, 14°—18°B. per bbl.....	$1.00	$1.00
Fuel Oil, 14°—18°B. per bbl.....	$1.00	$1.00
Kerosene, W. W. 40°—42° B per gal., 125-150 flash test.....	05¾–06¼	.06 –07
Cased Goods		
Gasoline, U. S. Motor.....	$2.55	$2.55
Kerosene, W. W. 38°—40° B per case, flash test 125-150.....	$1.50–1.55	$1.50–1.55

N. Y. Domestic Market

The following light oil, gas and fuel oil prices are F. O. B. New York refineries, being products made from Domestic (including California) and Mexican Crudes.

	May 10	May 3
U. S. Motor Gasoline, Tank Cars Delivered greater N. Y..	–14½	–14½
U. S. Motor Gasoline, Tank Cars Bayonne.....	–13½	–13½
Kerosene, 41-43 150 W. W. Tank Cars De'd greater N. Y..	–11½	–.11½
Grade C Bunker f.o.b. N. Y. Ref.	1.75	1.75
Diesel Oil f. o. b. Refinery....	2.41½	2.41½
Gas Oil, 36-40, Bulk Refinery..	–06½	–06½
Gas Oil 28-34 Bulk, Refinery...	–05¾	–05¾

Crude Oil Prices All Fields

PRICES IN EFFECT, *May 10*

EASTERN FIELDS

Posted by Joseph Seep Purchasing Agency

Penna. Grade Oil in New York Transit Lines (Alleghany, N. Y. District)	$3.65
Bradford District Oil in National Transit Lines (Bradford District)	3.65
Penna. Grade Oil in National Transit Lines (Other Pennsylvania)	3.55
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania)	3.55
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)	3.50
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district)	3.30
Keister Grade in National Transit Lines (Butler Co.)	2.45
Gaines, Tioga Co. (Pa.)	3.10
Cabell Grade in Eureka Pipe Lines (West Virginia)	2.20
Corning Grade in Buckeye Pipe Lines (Ohio)	2.35
*Somerest Medium in Cumberland Pipe Lines (Kentucky)	2.30
*Somerset Light in Cumberland Pipe Lines (Kentucky)	2.45
Ragland Grade in Cumberland Pipe Lines (Kentucky)	1.15

*Somerset oil run prior to Oct. 1, 1923, takes price of 6 cents lower than above quotations.

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Wooster	$2.35	Illinois	$2.12
Lima	2.28	Plymouth	1.65
Waterloo	1.10	*Canadian Petrolia	2.63
Indiana	2.00	*Posted by Imperial Oil, Ltd.	
Princeton	2.12		

OKLAHOMA, KANSAS And NORTH TEXAS FIELDS

(Prices of Prairie Oil & Gas Co.)
(Prairie's prices apply in Oklahoma, Kansas, North and Central Texas)

28-28.9	$1.40	41-41.9	$2.44
29-29.9	1.48	42-42.9	2.52
30-30.9	1.56	43-43.9	2.60
31-31.9	1.64	44-44.9	2.68
32-32.9	1.72	45-45.9	2.76
33-33.9	1.80	46-46.9	2 84
34-34.9	1.88	47-47.9	2.92
35-35.9	1.96	48-48.9	3.00
36-36.9	2.04	49-49.9	3.08
37-37.9	2.12	50-50.9	3.16
38-38.9	2.20	51-51.9	3.24
39-39.9	2.28	52 and above	3.32
40-40.9	2.36		

The Texas Co. adopted same schedule as Prairie on Feb. 1.

Humble Oil & Refining Co. Prices

(Ranger, North Texas, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie and Moran crudes all in Texas.)

Effective Feb. 1, Humble posted same gravity and price schedule in all the above fields as that posted by Prairie, excepting that Humble is paying 8c less for each full degree below 28 gravity.

Magnolia Petroleum Co. Prices In Oklahoma, Kansas and North Texas

Effective Feb. 1, Magnolia posted same gravity and price schedule as Prairie, in all fields where it purchases on a gravity basis, excepting that it is paying $1.20 for all oil below 28 gravity.

Effective Feb. 1, Corsicana heavy was advanced to $1.15 per barrel.

NORTH LOUISIANA—ARKANSAS FIELDS

***Prices of the Standard Oil Co. of Louisiana**

Caddo, below 32	$1.85
" below 32-34.9	2.00
" 35-37.9	2.10
" 38 and above	2.20
Homer, below 31	1.60
" 31-32.9	1.75
" 33-34.9	1.85
" 35 and above	1.95
Haynesville, below 33	1.75
" 33 and above	1.85
El Dorado, including Lisbon below 33	1.75
" 33-34.9	1.85
" 35-36.9	1.95
" 37 and above	2.05
Bull Bayou, 32-34.9	1.70
" 35-37.9	1.85
" 38 and above	2.00
Smackover, below 24	1.00
" 24-24.9	1.25
" 25-25.9	1.30
" 26-26.9	1.35
" 27 and above	1.40
De Soto	2.05
Crichton	1.85
Bellevue	1.50
Cotton Valley	1.10
**Urania, La	1.80

*Same prices maintained by The Texas Co., Gulf Refining Co. of Louisiana and Louisiana Oil Refining Corp. All purchasers of Smackover have maintained since Feb. 1 and 2, the same gravity and price schedule as Standard. Gulf is paying 95c for Calion (East El Dorado Crude.)

**Posted by Louisiana Oil Refining Corp.

STEPHENS, ARKANSAS

Posted by Louisiana Oil Refining Corp., and Atlantic Oil Producing Co.

26 and above.....$1.50 Below 26.....$1.30

GULF COASTAL FIELDS

Posted by Humble Oil & Refining Co.

Grades A	$1.50	29-29.9	$1.65
Grades B:		30-30.9	1.70
Below 25	1.40	31-31.9	1.75
25-25.9	1.45	32-32 9	1.80
26-26.9	1.50	33-33.9	1.85
27-27.9	1.55	34-34.9	1.90
28-28.9	1.60	35 and above	1.95

Humble is paying the above prices in Goose Creek, Hull, Liberty, West Columbia, Orange and Pierce Junction fields. All other Gulf Coastal crudes are classified as A grades only. Other major purchasers are The Texas Co., Gulf Production Co., Sun Oil Co., and Sinclair Crude Oil Purchasing Co.

ROCKY MOUNTAIN FIELDS

Prices of Ohio Oil Co. and Midwest Refining Co.

†Salt Creek 29-29.9	$1.48
Salt Creek 30-30.9	1.56
Salt Creek 31-31.9	1.64
Salt Creek 32-32.9	1.72
Salt Creek 33-33.9	1.80
Salt Creek 34-34.9	1.88
Salt Creek 35-35.9	1.96
Salt Creek 36-36.9	2.04
Salt Creek 37 and above	2.12
Elk Basin	2.15
Grass Creek light	2.15
Big Muddy	2.00
Lance Creek	2.15
Rock Creek	2.00
†Osage	2.15
†Cat Creek, Mont	2.15
Sunburst, Mont	1 05
†Hogback, N. Mex	2.20
Artesia, N. Mex	1.70

†Posted by Midwest Refining Co. Midwest also buys Grass Creek light, and Elk Basin.

The Texas Co. buys Salt Creek and Big Muddy crude.

CALIFORNIA

Standard Oil Co. of California

Santa Maria and Ventura Posted by *Union Oil Co.

Gravity	Signal Hill Huntington Beach	Ingle-wood Torrance	Newhall, McKittrick, Whittier La Habra	Kern River	Olinda-Brea Canon, Richfield	Athens-Rosecrans Dominguez	Monte-bello	Coyote Hills	Santa Fe Springs	Midway-Sunset Elk Hills	Lost Hills	Coalinga	Wheeler Ridge	Santa Maria	Ventura
14-14.9	$ .85	$ .85	$ .85	$ .75	$ .85	.....	$ .85	$ .85	.....	$ .75	$ .75	$ .75	$ .75	$ .85	$ .85
15-15.9	.87	.87	.85	.75	.87	.....	.85	.85	.....	.75	.75	.75	.75	.85	.85
16-16.9	.90	.90	.85	.75	.90	.....	.85	.85	.....	.75	.75	.75	.75	.85	.85
17-17.9	.94	.94	.85	.75	.94	.....	.85	.85	.....	.75	.75	.75	.75	.85	.85
18-18.9	.98	.98	.86	.75	.98	.....	.86	.86	.....	.75	.75	.75	.75	.85	.85
19-19.9	1.04	1.04	.87	.75	1.04	.....	.87	.87	.....	.75	.75	.75	.75	.85	.85
20-20.9	1.10	1.10	.89	.....	1.10	.....	.89	.90	.....	.82	.82	.79	.78	.90	.90
21-21.9	1.16	1.16	.91	.....	1.16	.....	.91	.98	.....	.90	.90	.86	.81	.97	.97
22-22.9	1.22	1.22	.94	.....	1.22	.....	.94	1.06	.....	1.00	1.00	.93	.85	1.04	1.04
23-23.9	1.28	1.28	.....	.....	1.28	.....	.97	1.14	.....	1.11	1.11	1.00	.89	1.11	1.11
24-24.9	1.34	1.34	.....	.....	1.34	$1.34	1.01	1.22	1.02	1.22	1.22	1.07	.93	1.18	1.18
25-25.9	1.40	1.40	.....	.....	1.40	1.40	1.05	1.30	1.08	1.33	1.33	1.14	.97	1.25	1.25
26-26.9	1.46	1.46	.....	.....	1.46	1.46	1.09	1.38	1.16	1.44	1.44	1.21	1.01	1.32	1.32
27-27.9	1.52	1.52	.....	.....	1.52	1.52	1.13	1.46	1.24	1.55	1.55	1.28	1.05	1.39	1.39
28-28.9	1.58	1.58	.....	.....	1.58	1.58	1.17	1.54	1.32	1.66	1.66	1.35	.....	1.46	1.46
29-29.9	1.64	.....	.....	.....	1.64	1.64	1.21	1.62	1.40	1.77	1.77	1.42	.....	1.53	1.53
30-30.9	1.70	.....	.....	.....	1.70	1.70	1.25	1.70	1.48	1.88	1.88	1.49	.....	1.60	1.60
31-31.9	1.76	.....	.....	.....	.....	1.76	.....	.....	1.60	1.99	1.99	1.56	.....	.....	1.67
32-32.9	1.84	.....	.....	.....	.....	1.84	.....	.....	1.72	2.10	2.10	1.63	.....	.....	1.73
33-33.9	.....	.....	.....	.....	.....	1.92	.....	.....	1.84	2.21	2.21	1.70	.....	.....	1.79
34-34.9	.....	.....	.....	.....	.....	2.00	.....	.....	1.96	.....	2.32	1.77	.....	.....	1.85
35-35.9	.....	.....	.....	.....	.....	2.08	.....	.....	2.08	.....	.....	1.84	.....	.....	1.92
36-36.9	.....	.....	.....	.....	.....	2.16	.....	.....	2.16	.....	.....	.....	.....	.....	
37-37.9	.....	.....	.....	.....	.....	2.24	.....	.....	2.24	.....	.....	.....	.....	.....	
38-38.9	.....	.....	.....	.....	.....	2.34	.....	.....	2.34	.....	.....	.....	.....	.....	
39-39.9	.....	.....	.....	.....	.....	2.44	.....	.....	2.44	.....	.....	.....	.....	.....	
40-40.9	.....	.....	.....	.....	.....	2.54	.....	.....	.....	.....	.....	.....	.....	.....	
41-41.9	.....	.....	.....	.....	.....	2.64	.....	.....	.....	.....	.....	.....	.....	.....	
42-42.9	.....	.....	.....	.....	.....	2.74	.....	.....	.....	.....	.....	.....	.....	.....	

*Union Oil Co. also purchases Long Beach crude and is maintaining the same gravity and price schedule in that field as the Standard maintains in Signal Hill and Huntington Beach fields. The Union also buys and pays the same prices as the Standard in the Rosecrans-Dominguez fields, on gravities ranging from 14 degrees to and including 24.9 degrees; and in Santa Fe Springs, on gravities ranging from 20 to and including 23.9 degrees.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are the average market prices for the week on materials used by refiners and compounders f. o. b. shipping point as effective this date.

Refiners' Supplies

	May 10	May 3
Soda Ash light 58% bags.cwt.	-$1.38	-$1.38
Silicate of Soda 60 deg. drums.....cwt.	- 1.65	- 1.65
Sal Soda wks.....1.10-	1.25	1.10- 1.25
Caustic Soda 70% solid..cwt.	- 3.10	- 3.10
Chloride of Lime.....cwt. works.....	- 2.00	- 2.00
Sulphuric Acid 60 deg. tank cars f. o. b. shipping point.....per ton	-10.00	-10.00
Liquid Chlorine tank cars works.....lb.	- .04	- .04

Compounders' Supplies (Open Market)

Vegetable Oils—		
Linseed carloads spot.....lb.	10.8	11
May.....	10.8	11
Tanks, spot.....	09.8	10
Boiled carloads spot.....lb.	09.9	11.1
*Soya Bean spot, Bbls....lb.	13½	13½
Animal Oils—		
English Degras.....lb.	.05½	-.05½
Domestic Degras, bbls., carloads.....lb.	-.04¾	-.04¾
*Horse.....lb.	-.09½	-.09½
Oleic Acid—		
Dist. Bbls.....lb..10¾	-.11	.10¾-.11
Saponified Bbls.....lb..11	-.11¼	.11 -.11¼
Castor Oil—		
No. 1 Carlots, Bbls.....	-.13¼	-.13¼
No. 3 Carlots, Bbls.....	-.12¾	-.12¾
Lard Oils—		
Prime		
Winter Strained. to 1⅛ffa.40/45c.t.lb.	.17	.17
Extra		
Winter Strained. 2 to 4½ffa.40/45c.t.lb.	.13½	.13¼
Extra..... 4 to 5 ffa.40/45c.t.lb.	.13	.12¾
Extra No.1 7 to 10 ffa.40/50c.t.lb.	.12½	.12½
No. 1.....15 to 18 ffa.40/45c.t.lb.	.12¼	.12¼
No. 2.....22 to 23 ffa.40/45c.t.lb.	.12	.12
Prime Edible Tallow under 1⅛ffa. 40/45c.t.N.Y.....lb.	-.09½	-.09¼
Tallow acidless.....lb.	-.11¾	-.12½
Lard Stearine.....lb.	nominal	nominal
Oleo Stearine.....lb.	-.12	-.12¼
Neatsfoot Oil—		
Pure.....bbls.-lb.	.16½	.16¾
Extra.....do lb.	.12½	.12½
No. 1.....bbls.-lb.	.12¾	.12¾
Cold pressed.....lb.	-19¼	.20½
Fish Oils—		
Menhaden Oil		
Light pressed.....gal.	-.65	-.65
White.....gal.	-.67	-.67
Yellow bleached.....gal.	-.70	-.70
*Herring tank cars coast.....gal.	-.50	-.50
Whale, extra winter bleached.....gal.	-.82	-.82
Seal.....gal.		Nominal
Naval Stores—		
Turpentine, N. Y.....gal.	.83	.87½
Turpentine†.....gal.	.76	.80½
Rosin, B. N. Y.....bbl.	7.50	8.40
Rosin, F. N. Y.....bbl.	10.75	11.90
Rosin, B†.....bbl.	6.00	6.75
Rosin, F†.....bbl.	9.25	10.45
Rosin Oil 1st run.....gal.	.45	.55
Rosin Oil 2nd run.....gal.	.50	.60
Pine Tar—		
Kiln Burnt.....bbl.	14.50	14.50
Retort.....bbl.	15.50	15.50
Alcohol—Denatured		
Formula 5		
Bbls.....gal.	-30	-30
Drums.....gal.	-25	-25

†Savannah, Ga. market.
*Nominal.

Caustic Soda Is Quiet; Sulfuric Acid Firm

NEW YORK, May 10.—Following is a review of the markets for oils and supplies used in compounding and refining:

Alcohol demand continued disappointing. Buyers feel prices will go lower and are holding off. Stocks large, although production is falling. No further reductions announced.

Linseed Oil demand slightly better but prices remained easy reflecting decline in flaxseed. Oil stocks large. Buying hand-to-mouth. More interest in futures. Paint makers doing most of buying. Boiled oil dull. Soya bean oil quiet. Rumor 9⅞ in tanks can be done on coast on firm bid.

Animal Oils tending higher. Demand more active. Keen interest in tallow oil. Pure neatsfoot oil demand better. Prime lard oil steady. Domestic degras firmer. English degras tending higher. Oleic acid demand better.

Fish Oils dull. Crude menhaden still nominal, and scarce. Light pressed menhaden oil easier at 65 cents a gallon in barrels. Whale oil offerings lighter. More interest in domestic cod oil at 58 to 60 cents a gallon in barrels.

Sal Soda demand fair. Business chiefly small quantities. Prices steady. Stocks moderate.

Sulfuric Acid firm reflecting strength in sulfur. Demand more active. Prices well held. More interest in future deliveries.

Caustic Soda quiet. Buyers holding off. Purchases for immediate needs only. Stocks fairly large.

Soda Ash buying less active. Big consumers holding off. No price changes reported. Export buying disappointing.

Liquid Chlorine demand improving. Market firmer. Stocks moderate.

Naval Stores less active. Export buying light, due partly to unfavorable developments in United Kingdom. Domestic demand for turpentine lagging. Receipts larger. Rosins moving in routine way. Tar demand better. Pitch quiet. Rosin oils dull.

Benzol Demand Increasing

NEW YORK, May 10.—Consumption of motor benzol continues to gain and leading factors are still quoting 24 cents a gallon in tank cars at the ovens. However, there was a persistent rumor of an impending advance but confirmation was lacking. Production of coke is gradually declining and consequently the available supply of motor benzol also is waning.

Demand for motor benzol is much more active than a week ago and many of the motor fuel blenders that have not covered their forward requirements, are clamoring for supplies. Pure and 90 per cent benzol are firm at recent advances. Consumption of both grades is heavier.

The Barrett Co. prices are:

	Tank Cars	Drums
Motor Benzol, ovens.....24c		..
Commercially pure benzol..25		30
Commercial 90% benzol.....25		30
Commercially pure toluol...35		40
Commercial xylol 36		41
Solvent Naphtha 35		40

Gulf Coast Lubes Strong

HOUSTON, May 10.—Gulf Coastal lubricant market continued strong last week. Sellers expect good summer demand and are optimistic. The sagging tendency apparent in a few grades 10 days ago, has disappeared. More inquiries are being received from the jobbing trade. Manufacturers are in better shape because of current shipments. Prices are generally unchanged.

S. O. Indiana To Sell Three Motor Fuels

CHICAGO, May 8.—The resumption of the sale of ethyl gasoline in Chicago by the Standard Oil Co. of Indiana will have no effect on the sale of Solite, the company's high test motor fuel. All Standard Oil Co. stations will be able ultimately to offer three different motor fuels, Red Crown gasoline, the competitive grade; Solite, the high test and premium gasoline, and Ethyl gasoline, the motor fuel designed to improve operation of high-compression motors.

At some of the Standard's Chicago stations additional tanks and pumps are being installed. In some cases 2000-gallon tanks are being put it. This, it is believed, is being done to obviate the necessity of so much Sunday delivery by tank wagons which is coming to be a burden to big city distributors.

Eastern and Central Kentucky Refinery Markets

LEXINGTON. and. ASHLAND, May 10.—Gasoline in all Kentucky refinery markets is softer. Kerosene is scarce and strong and refiners report shipments moving in satisfactory volume. Today's prices are:

	Eastern	Central
58-60 14		13
60-62 .....14½		13½
64-66 .....14¾		14¼
68-70 .....15¼		15
41-43 w.w. kerosene.....11¼		12
24-26 fuel oil 5⅛		5⅛
Gas oil 6½		6

Imperial Oil, Ltd.—Royalite Oil Co., a subsidiary operating in the Turner Valley oil field, made a net profit of $335,754 last year on $1,000,000 capital.

Pan American Petroleum & Transport Greatly Increases Net Profits

By Roger B. Stafford
N. P. N. Staff Writer

CLEVELAND, May 10 PAN-AMERICAN PETROLEUM & TRANSPORT CO., shed of its California properties after the sale of its control by Edward L. Doheny to a syndicate dominated by Standard Oil Co. of Indiana, netted 80 per cent more last year than in the preceding year. This was due, in main, to general improvement in the oil industry which permitted the corporation's operating subsidiaries to expand their operations.

The net profits last year were $27,335,995, or $9.95 per share on the average amount of $50 stock outstanding during the year and $9.91 a share on the amount in the public's hands on Dec. 31. In 1924 net profits were $15,185,072 or $5.67 a share on the stock outstanding Dec. 31, 1924.

Production from the Pan American properties in 1925 totaled 38,600,000 barrels, a gain of 2,000,000 barrels over 1924 production according to the statement of Fred H. Wickett, chairman of the board, to stockholders.

Property Valuations

THE balance sheet as of Dec. 31 shows gross property valuation of $177,530,560 against which was carried a depreciation and depletion reserve of $67,349,688. Gross property valuation at the end of 1924 was $192, 783,154 and the depreciation and depletion reserve was $63,770.496. The decline in gross property valuation of $15,000,000 last year was due to the sale of the California properties to the Pan American Western Petroleum Co., the new Doheny corporation.

Property valuations, before depreciation and depletion reserves, were carried on the books as follows:

Oil lands, leases, development	$ 79,769,054
Pipe line facilities	13,877,770
Storage facilities	4,051,119
Refining facilities	17,276,298
Marketing facilities	23,694,068
Marine equipment	37,932,242
Miscellaneous	930,000
Total	$177,530,560

During 1925 the company purchased the Southern Pipe Line Co. and the Southern Crude Oil Purchasing Co., which operate in the southwest. On Dec. 31 it owned 497,869 class A shares and 1,000,000 class B shares of the Lago Petroleum & Transport Co. and since the first of 1926, Mr. Wickett reported, options have been exercised on enough Lago stock to give Pan American control. The holdings on Dec. 31 was carried on the books at $6,959,938 although in the third week in April the stock had a market value of $25,000,000. Pan American has assumed management of Lago.

The investments which were increased tenfold last year, include $11,250,000 of the 15-year 6 per cent notes of the Pan American Western Petroleum Co. and $1,750,000 stock of the American Oil Co., Baltimore.

Current assets on Dec. 31 amounted to $53,497,794 and current liabilities to $16,607,732, leaving net working capital of $36,890,062 compared with $28,588,826 on Dec. 31, 1924. Oil inventories were reduced, being valued on Dec. 31 at $12,903,430, cost, compared with $18,056,486 on Dec. 31, 1924.

Bonded and mortgage debt was decreased more than $2,200,000. On Dec. 31 current assets were $20,107,000 in excess of combined current liabilities and bonded and mortgage indebtedness. The corporation paid to the United States and Mexican governments $13,651,000 in taxes, compared with $11,554,000 in 1924.

Pan American Western Nets $8.46 a Share

CLEVELAND, May 10.—Pan American Western Petroleum Co. reports for 1925 net profit of $4,232,609, equivalent to $8.46 a share on the 500,010 shares of A and B stock outstanding on Dec. 31. In the first eight months of 1925 the company netted $8.66 a share ,according to a report issued in September.

(Continued on page 127)

Pan American Petroleum and Transport Co. Income and Surplus Accounts

	1925	1924	1923	1922	*1921
Operating income	$ 41,973,196	$ 29,720,651	$ 32,412,906	$ 48,049,736	$ 13,490,983
Interest etc	79,221	1,586,610	1,201,249	1,108,622	950,261
Depreciation, deplet	10,053,519	10,577,180	8,359,270	10,785,177	2,598,812
Federal taxes	4,000,000	2,250,000	2,500,000	4,580,000	900,000
Minority interest	504,461	122,289	.....	.....	.....
Balance	$ 27,335,995	$ 15,185,072	$ 20,352,387	$ 31,575,937	$ 9,041,910
Other income	.....	.....	.....	.....	9,120,704
Net profits	$ 27,335,995	$ 15,185,072	$ 20,352,387	$ 31,575,937	$ 18,162,614
Dividends	16,477,044	10,367,671	20,457,510	10,561,508	8,419,895
Surplus	$ 10,858,951	$ 4,817,401	‡$ 105,123	$ 21,014,429	$ 9,742,719
Previous surplus	11,832,605	8,276,918	30,830,122	25,457,423	15,560,971
Total surplus	$ 22,691,556	$ 13,094,319	$ 30,724,999	$ 46,471,852	$ 25,303,690
Adjustments	7,333,075	** 1,261,714	—1,215,993	†5,590,170	153,733
Stock dividend	.....	.....	21,232,089	21,231,900	.....
P. & L. surplus	$ 15,358,481	$ 11,832,605	$ 8,276,917	$ 30,830,122	$ 25,457,423

*Includes owned companies, but excludes controlled companies.
†Adjustments to give effect to acquisition to additional stock.
‡Deficit.
—Loss on investments less transfer of $1,500,000 from contingency reserve.
**Properties abandoned, unamortized discount, etc.

Pan American Petroleum and Transport Co. Balance Sheets as of Dec. 31

	1925	1924	1923	1922	*1921
ASSETS					
Steamships, oil lands, etc†	$110,180,872	$129,012,657	$123,125,208	$110,404,255	$ 41,739,786
Investments	20,122,501	2,145,990	2,145,002	6,267,743	63,250,846
Deposit with Mexican Gov't	1,500,000	1,500,000	1,500,000	1,500,000	.....
Mexican tax deposit	.....	2,696,438	4,382,179	.....	.....
Accrued dividends due	.....	.....	.....	.....	1,124,530
Accounts receivable	11,303,374	11,874,613	11,282,471	11,338,876	908,740
Insurance claims	.....	.....	.....	.....	453,770
Cash	21,953,685	14,102,829	8,479,312	30,393,294	2,174,916
Inventories	20,240,134	26,178,776	20,473,198	10,713,945	60,444
U. S. Gov't receivable in oil	599,209	2,531,841	.....	.....	.....
U. S. Gov't receivers	.....	1,633,675	.....	.....	.....
Deferred charges	2,234,246	2,883,204	2,076,872	3,095,580	1,499,775
Total	$189,119,435	$194,560,023	$173,464,242	$173,713,693	$111,212,807
LIABILITIES					
Common stock	$ 50,077,950	$ 50,077,850	$ 50,077,800	$ 50,077,700	$ 50,077,450
Common stock, class B	87,738,100	83,748,850	77,856,600	56,089,778	20,099,250
Minority int. control. cos	1,332,269	1,659,288	2,372,140	2,737,847	.....
Bonded and mortgage debt	16,783,006	19,057,767	15,445,733	16,114,950	10,785,787
Accounts payable	4,876,353	6,497,387	5,313,496	4,149,966	763,382
Notes payable	857,300	12,200,000	2,500,000	.....	.....
Dividends payable	4,163,760	2,714,168	5,192,410	4,329,364	2,105,466
Federal tax reserve, etc	6,710,319	4,687,679	4,876,548	7,663,350	1,924,049
U. S. Gov't receivers, suspense	.....	958,126	.....	.....	.....
Surplus	16,580,284	12,931,908	9,829,515	32,550,738	25,457,423
Total	$189,119,435	$194,560,023	$173,464,242	$173,713,693	$111,212,807

*Includes owned companies, but excludes controlled companies.
†After reserve for depreciation and depletion.

Transactions In Oil Shares on New York Stock Exchange

1925 High	1925 Low	1926 High	1926 Low		Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions week ended May 8 Sales	First	High	Low	Last	Ch'ge
.....	.....	26¼	24⅞	(sh)	713,000	N.P.	Amerada Corp.	40cQ	Apr. 30, 26	9,300	25¾	25⅞	25¼	25½	— ½
79¾	48	74	63	(sh)	200,000	N.P.	American Republics	.....	.....	100	64½	64½	64½	64½	0
47½	32	59½	44¾	$	56,000,000	$25	Associated Oil	50cQ	Apr. 26, 26	100	51⅜	51⅜	51⅜	51⅜	—1⅜
117½	95½	120¼	97		50,000,000	100	Atlantic Refining	.....	June 16, 24	34,500	117¾	119	111½	116	—1⅞
117¾	113½	117½	115¾		20,000,000	100	do pfd	$1¾Q	May 1, 26	200	116	116	116	116	0
38½	18¾	33½	24⅜		18,428,350	25	Barnsdall Corp. A	50cQ	Apr. 2, 26	5,700	26⅝	26¾	25¼	25⅞	—1⅜
30	16	29½	23¼		3,713,275	25	do B	50cQ	Apr. 2, 26	400	24	24	24	24	—1½
343⅜	237⅛	388⅛	305⅜	$	44,923,000	$25	California Petroleum	50cQ	Mar. 1, 26	16,400	333⅜	333⅜	32¼	323¼	— ¾
70	42½	73	50		19,834,300	100	General Asphalt	.....	.....	29,600	63⅞	65	60⅝	62¾	—2
109	86½	114¾	94⅞		7,416,000	100	do pfd	$1¾Q	Mar. 1, 26	800	103	105¾	103	105¾	— ¾
59⅛	42	65¾	49½		29,223,650	25	General Petroleum	75cQ	Mar. 15, 26	31,100	60	61	58⅝	60	+ ¼
85	59	72	50¼		25,000,000	100	Houston Oil	.....	.....	700	58⅛	59⅛	58	58¾	— ¾
41¾	13½	34	19⅝	(sh)	500,000	N.P.	Independent Oil & Gas	25cQ	Apr. 12, 26	17,200	24⅝	25½	23½	24	—1½
14¾	5½	13¾	9	$	3,204,590	$10	Indian Refining	.....	Dec. 15, 20	1,500	10¾	10¾	10⅛	10⅛	—1
12⅝	6	12½	8		4,545,860	10	do ctfs	.....	.....	.....	.....	.....	.....	.....	.....
110	77	104	90¼		2,296,400	100	do pfd	.....	Dec. 15, 21	.....	.....	.....	.....	.....	.....
1½	¼	¾	¼		1,678,760	10	Kansas & Gulf	.....	.....	.....	.....	.....	.....	.....	.....
23¾	13⅝	19⅝	12	(sh)	1,121,530	N.P.	Louisiana Oil Refining	.....	.....	4,000	14½	14⅞	14	14¾	0
35½	20⅜	28⅞	20¾	(sh)	330,000	N.P.	Maracaibo Oil	.....	.....	1,600	23⅛	23½	22⅝	22½	—1
60½	32⅝	60¼	49¼	(sh)	1,894,518	N.P.	Marland Oil Co	$1Q	Mar. 31, 26	47,500	55⅝	56	53	54¼	—2⅛
250	225	.....	.....	$	45,942,800	$100	Mexican Petroleum	$3Q	Apr. 20, 26	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....		12,000,000	100	do pfd	$2Q	Apr. 20, 26	.....	.....	.....	.....	.....	.....
22½	29	12⅜	6	(sh)	945,939	N.P.	Mexican Seaboard	.....	Nov. 15, 24	15,300	8¾	8¾	6¾	7¼	—1⅜
38	25¾	37	28	(sh)	1,357,800	N.P.	Mid-Continent Petroleum	.....	Aug. 1, 23	13,200	32	32⅜	30	31	—1
94¼	83	97	90	$	6,718,000	$100	do pfd	$1¾Q	Mar. 1, 26	100	97	97	97	97	+2
3¼	⅝	2½	1¼		26,013,760	10	Middle States	.....	July 1, 23	2,500	1½	1⅝	1⅜	1½	0
1½	1½	1⅛	⅞		3,786,460	....	do ctfs	.....	.....	400	⅞	⅞	⅞	⅞	0
78½	51⅝	83¼	51¾	(sh)	3,500,000	N.P.	Pacific Oil	$1.50S.A.	Jan. 20, 26	28,300	55¾	56	54¼	54¾	—1⅞
83⅞	59½	76½	56⅜	$	48,307,400	$50	Pan American P. & T.	$1.50Q	Apr. 20, 26	3,000	65	65¼	62½	64¼	— ½
84½	60⅜	78⅜	56⅞		90,484,800	50	do B	$1.50Q	Apr. 20, 26	47,600	66⅜	66⅞	63¼	65⅛	—1⅜
49¾	37¼	46	34	(sh)	400,000	N.P.	Pan American Western B	50cQ	Apr. 30, 26	3,500	38	39	37⅝	38½	— ½
6¾	2¼	17¾	4½	(sh)	198,770	N.P.	Panhandle P. & R.	.....	.....	78,100	13¾	17¼	12½	16¾	+2⅝
60½	37	90	51	$	2,935,200	$100	do pfd	.....	July 2, 23	700	85½	90	85½	90	+5¼
47⅜	36¼	48⅝	40	(sh)	2,045,381	N.P.	Phillips Petroleum	75cQ	Apr. 1, 26	37,900	44¾	45½	43¼	44¼	—1
3½	1¼	1⅞	¾	$	29,622,925	$25	Pierce Oil Corp	.....	.....	9,200	1	1	¾	1	— ⅛
40	20¾	27⅜	17		15,000,000	100	do pfd	.....	Feb. 1, 22	300	17½	17½	17	17	—2
8¾	4½	7	3⅞	(sh)	2,500,000	N.P.	Pierce Petroleum	.....	.....	4,500	4⅛	4⅛	3⅞	4⅛	0
32⅝	12½	17½	11	$	11,467,850	$50	Producers & Refiners	.....	Sept. 15, 23	2,800	13⅛	13½	12¾	13¼	0
47⅝	27	35	31		2,845,350	50	do pfd	.....	May 1, 25	600	31	31	31	31	— ½
33¾	25⅛	31	25⅜		75,959,250	25	Pure Oil Co	37½cQ	Mar. 1, 26	10,800	27⅜	27¾	26⅛	27½	0
108½	103	111¼	106		13,000,000	100	do 8% pfd	$2Q	Apr. 1, 26	100	107⅛	107⅛	107⅛	107⅝	+ ⅛
57⅜	48¼	57⅜	50	(sh)	773,883	13.40	Royal Dutch, N. Y. shares	$1.339	Jan. 29, 26	2,800	51⅜	51½	50¾	50¾	—1¼
49	39½	48⅝	41	(sh)	93,599	£2	Shell Transport & T	96½c	Jan. 22, 26	300	41⅛	41⅛	41	41	—1⅞
28⅜	21⅝	28⅛	24	(sh)	10,000,000	N.P.	Shell Union Oil	35cQ	Mar. 31, 26	10,200	25⅛	25⅛	24¼	24½	— ⅝
106½	99½	107	103	$	20,000,000	$100	do pfd	$1½Q	May 15, 26	200	106	106	105½	105½	+ ⅜
28½	17¾	28⅝	18		7,207,620	10	Simms Petroleum	50cS.A.	Jan. 2, 26	54,600	20¾	21¼	18	18½	—2¾
24⅞	17	24⅞	19⅜	(sh)	4,489,320	N.P.	Sinclair Consolidated	.....	May 31, 24	35,200	21⅝	21⅞	20½	20¾	—1⅜
94⅛	78¾	95	90	$	17,852,200	$100	do pfd	$2Q	May 15, 26	400	93	93	92¾	93	+ ⅛
32½	21¾	35⅛	26⅝		23,024,590	25	Skelly Oil Co	50cQ	Mar. 15, 26	80,300	34¾	35⅛	32½	33½	—1⅜
67¼	51½	62¼	52½		237,610,350	25	S. O. California	50cQ	Mar. 15, 26	10,200	55⅝	55⅝	54¼	54⅜	—1½
47½	38⅜	46⅜	40¼		513,456,025	25	S. O. New Jersey	25cQ	Mar. 15, 26	90,000	44½	45¾	43¼	44¾	0
119	116¼	118¾	116¼		199,972,900	100	do pfd	$1¾Q	Mar. 15, 26	800	118¾	118¾	118	118⅛	— ⅛
43⅞	38⅛	41⅝	30⅛	(sh)	1,103,776	N.P.	Sun Oil	25cQ	Mar. 15, 26	700	33	33¾	33	33¼	+ ¼
6⅜	2	4¼	2¼	(sh)	1,121,368	N.P.	Superior Oil Corp	.....	Dec. 20, 20	1,200	2½	2¾	2½	2½	— ⅛
55	42¾	54	48	$	164,450,000	$25	The Texas Co	75cQ	Mar. 31, 26	18,000	51	51	50	50¾	— ½
23¾	10⅞	19½	12⅛		8,380,340	10	Texas Pacific Coal & Oil	.....	June 30, 23	6,800	14½	14⅝	13⅝	13¾	— ¾
56⅞	30¼	39¼	30¼	(sh)	2,018,231	N.P.	Tide Water Oil Co	37½c	Mar. 31, 26	200	33	33	32	32¾	+1¼
101	99	103	90	$	25,042,000	$100	do 5% pfd	$1.25Q	May 15, 26	100	93	93	93	93	0
5⅞	3½	4¾	3	(sh)	3,742,029	N.P.	Transcontinental Oil	.....	.....	17,200	3⅝	3⅞	3½	3¾	0
43⅜	33	49⅜	37¼	$	40,480,800	$25	Union Oil of California	50cQ	May 10, 26	11,300	43⅞	43⅞	42⅝	43	— ⅛
134	96¼	94	80		24,423,300	100	Union Tank Car Co	$1¼Q	Mar. 1, 26	1,000	90⅛	90⅝	90	90	— ½
117½	113¾	116½	113¾		12,000,000	100	do pfd	$1¾Q	Mar. 1, 26	.....	.....	.....	.....	.....	.....
31¾	25½	29¼	25⅛	(sh)	490,000	N.P.	White Eagle Oil & Refining	50cQ	Apr. 20, 26	4,400	26⅞	27¼	26⅜	26¾	— ½

*New High †New Low xEx-dividend Total Sales 805,500

Pittsburgh Stock Exchange

1925 High	1925 Low	1926 High	1926 Low	Par Value	Stocks	Transactions Week Ended May 7 Sales	First	High	Low	Last	Ch'ge
.....	.....	6⅝	6⅝	N.P.	Andes Petroleum	500	6¾	6¾	6¾	6¾	+ ⅛
8¼	5¾	7	5¾	$10	Arkansas Nat. Gas	1,995	6⅞	6¼	6⅞	6⅞	0
75¾	69¾	.....	.....	N.P.	Columbia Gas	.....	.....	.....	.....	.....	.....
18	14½	17	12½	$10	Devonian Oil	310	12½	13	12½	12¾	+ ¼
112½	105¾	115	112	$100	Duquesne Lt. 7s pfd.	.....	.....	.....	.....	.....	.....
95	90	.....	.....	100	Fayette County Gas.	.....	.....	.....	.....	.....	.....
.....	.....	10	5½	....	HoustonGulfGas(w.i.)	400	6	6	6	6	— ¼
55	32½	56⅝	49½	25	Lone Star Gas Corp.	1,394	32	32	31	31½	— ½
.....	.....	33½	30	....	do new	.....	.....	.....	.....	.....	.....
37¼	31	36½	33¼	25	Ohio Fuel Corp.	3,818	34	34⅛	33⅝	34	0
34	26	34	28	25	Oklahoma Nat. Gas.	2,000	29¼	29¾	29	29¾	+ ¾
8¾	5	5¾	4¼	5	Pittsburgh O. & G.	.....	.....	.....	.....	.....	.....
9¾	6	10	8	10	Salt Creek Cons.	25	8½	8½	8½	8½	+ ½
13¾	8½	10	8½	10	Tidal Osage	.....	.....	.....	.....	.....	.....

Pittsburgh Curb Market

1925 High	1925 Low	1926 High	1926 Low	Par Value	Stocks	Transactions Week Ended May 7 Sales	First	High	Low	Last	Ch'ge
2½	.60	3¾	2¼	$ 5	Colombia Synd.	.....	.....	.....	.....	.....	.....
.60	.15	15	15	5	Duquesne Oil	.....	.....	.....	.....	.....	.....
9	5½	.....	.....	10	Forest Oil	.....	.....	.....	.....	.....	.....
92¾	64	91½	85	25	Gulf Oil Corp.	.....	.....	.....	.....	.....	.....
.....	.....	10	6½	....	Houston Gulf Gas.	.....	.....	.....	.....	.....	.....
12½	3¾	12	7½	N.P.	Leonard Oil & Dvlp.	.....	.....	.....	.....	.....	.....
.....	.....	1⅝	1⅝	N.P.	Mountain & Gulf	.....	.....	.....	.....	.....	.....
2¾	1⅜	.....	.....	1	Oklahoma Eastern	.....	.....	.....	.....	.....	.....
.47	.20	.20	.15	10	Omar O. & G.	.....	.....	.....	.....	.....	.....
.....	.....	2	1¾	....	Pittsburgh Oil Dev.	.....	.....	.....	.....	.....	.....
27½	25	33	26	10	Plymouth Oil	550	29⅜	29½	29	29⅜	+ ⅛
7	3	5½	3	5	States Oil	.....	.....	.....	.....	.....	.....
4	1⅜	3⅛	2¼	$ 1	Texon Oil & Land	1,510	3	3	2⅞	2⅞	— ⅛
11	9	9½	9¼	10	Tidal Osage	.....	.....	.....	.....	.....	.....
.....	.....	42½	41	N.P.	Waverly Oil Wks. A	.....	.....	.....	.....	.....	.....

*New High ‡New Low xEx Dividend

NEW YORK CURB BONDS

Week Ending May 7

	High	Low	Last	Ch'ge
Atl. Gulf & W I 5s '59	70¾	69½	70	—1
Cities Serv. 6s '44	92	91⅝	91⅞	— ⅛
Cities Service 7s "C" '66	129¾	129½	129¾	+ ¼
Cities Serv. 7s "D" '66	103⅜	103⅛	103¼	— ¼
Cities Serv. 8s "E" '66	109½	109	109	0
Galena S O 7s	102	102	102	0
General Pet. 6s '28	101¾	101⅝	101⅝	0
General Pet. 5s '40	98⅞	98⅝	98⅝	— ¼
Gulf Oil 5s '37	100½	100	100¼	0
Gulf Oil 5½s '27	100¾	100¾	100¾	0
Gulf Oil 5½s '28	101	101	101	0
Independ. Oil 6½s '31	98⅞	97¾	98⅞	— ⅛
Pan Amer Pet. 6s '40	101¼	100½	100½	—1⅝
Pure Oil 6½s '33	103½	103	103½	+ ½
S O N Y 6½s '33	106½	105¾	106	+ ⅝
Sun Oil 5½s '39	99¾	99¾	99¾	+ ¼
Trans. Cont. Oil 7s '30	94	93	93	—1
United Oil Prod. 8s '31	33	32	32⅛	+1⅛

NEW YORK BONDS

Week Ending May 7

	High	Low	Last	Ch'ge
Amer. Rep. Cor. Deb. 6s	100	99¾	100	+ ¼
Associated Oil gold 6s	103⅛	102¾	103	+ ¼
Atlantic Refg. deb 5s	101½	100¾	101¼	+ ½
Barnsdall Corp. 6s	100	96⅜	99⅝	— ⅜
Calif. Petrol sf 6½s	104	103⅞	103⅞	+ ⅛
Empire Gas & Fuel 7½s	102⅛	101¾	102	+ ¼
Empire Gas & Fuel 6½s	97¾	97⅛	97½	— ¼
Gen. Asphalt 6s	104¼	104¼	104¼	—1¼
Gen. Petroleum 5s	99⅛	98⅜	98¾	— ¼
Humble Oil & Refg. 5½s	102¾	102⅜	102¾	+ ⅜
Mid-Cont. Pet. 6½s	104	103⅞	104	+1⅛
Pan-Amer. P. & T. 7s	105¾	105½	105	— ⅝
Pan-Amer. P. & T. 6s	107½	106¾	106¾	— ¾
Pierce Oil deb. 8s	106¾	106¾	106¾	0
Sinclair Con. Oil col. 7s	96½	95¾	95¾	— ⅜
Sinclair Con. Oil con. 6½s	90⅞	90¼	90½	— ½
Sinclair Con. Oil 6s	108¼	107	107¼	—1¼
Sinclair Crude Oil 6s	101	100⅝	100¾	0
Sinclair Pipe Line sf 5s	90¾	90⅛	90½	— ¼
Skelly Oil 6½s	139½	138	138¾	—7¾
Superior Oil 7s	96	96	96	0
Union Oil of Calif 6s-A	105⅝	105⅝	105⅝	0
Union Oil of Calif 5s-C	97½	96¾	96⅞	— ⅜

Standard Oil Stock Traded in New York Curb Market

1925 High	1925 Low	1926 High	1926 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions week ended May 7 Sales	First	High	Low	Last	Ch'ge
26⅝	17¼	19¾	16⅜	£ 4,000,000	£1	Anglo American	32.4cS.A.	Jan. .4, 26	700	17⅜	17¾	16⅜	16⅜	—1⅜
4¼	1⅜	2¼	1¾	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	200	1¾	1¾	1¾	1¾	0
12⅜	3	4½	3½	$ 10,000,000	$10	do pfd	.....	.....	.....	.....	.....	.....	.....	.....
240	205	255	226	1,000,000	100	Borne Scrymser	‡84S.A.	Apr. 15, 26	10	236	236	236	236	+1
72	53½	59½	53	10,000,000	50	Buckeye Pipe Line	$1Q	Mar. 15, 26	200	53½	53½	53	53	0
74	48½	73¾	65	3,000,000	25	Chesebrough Mfg	75cQ	Mar. 31, 26	100	67	67	67	67	— ¾
115	110	.....	.....	1,000,000	100	do pfd	$1¾Q	Mar. 31, 26	.....	.....	.....	.....	.....	.....
31½	21⅞	25⅞	19½	34,914,280	10	Continental Oil	25cQ	Mar.'15, 26	12,800	21½	21½	20⅞	21	— ¾
17¼	10	16	13½	1,500,000	25	Crescent Pipe Line	.....	Sept. 15, 23	.....	.....	.....	.....	.....	.....
156	132	137	110	3,000,000	100	Cumberland Pipe Line	$3Q	Mar. 15, 26	120	114	115½	114	115	+3½
96	61	63¾	47¾	5,000,000	100	Eureka Pipe Line	$1Q	May 1, 26	100	49	49	47¾	47¾	—1¼
68½	23½	32½	19	16,000,000	100	Galena Signal Oil	.....	June 30, 25	350	20⅝	21½	20⅛	20⅝	— ⅞
105	88	94½	78	4,000,000	100	do new pfd	$2Q	Mar. 31, 26	150	83⅛	86	83⅛	85	+2
114	95	97½	80⅛	2,000,000	100	do old pfd	$2Q	Mar. 31, 26	130	83¼	86	83¼	86	+5⅛
95	42¼	99⅝	52	43,750,000	25	Humble Oil & Refining	30cQ	Apr. 1, 26	24,000	66½	67	63⅛	63¼	—4
.....	.....	68⅛	53½	72,916,667	25	do new w. i	.....	.....	8,900	67	67	63½	64	—3½
.....	.....	27½	17½	.....	....	do rights	.....	.....	.....	.....	.....	.....	.....	.....
134½	127	144½	134¼	20,000,000	100	Illinois Pipe Line	$6S.A.	Dec. 31, 25	60	144	144	143½	144	— ½
39¼	27¼	38¾	31½	(sh) 6,491,852	N.P.	Imperial of Canada (new)	25cQ	Mar. 1, 26	12,900	35¼	36	33¾	35½	+ ½
84	57⅛	70	58	$ 5,000,000	50	Indiana Pipe Line	$1Q	May 15, 26	100	64½	64½	64	64	—1
35⅜	22⅛	35¼	28¾	(sh) 7,118,138	N.P.	International Petroleum	25c	Feb. 15, 26	38,400	33⅜	33⅜	32	32⅜	— ¾
25⅝	16½	20⅜	15¾	$ 6,362,500	$12½	National Transit	25cS.A.	Dec. 15, 25	500	16¼	16¼	15¾	16	0
79	49¼	51⅜	39	5,000,000	100	New York Transit	$1Q	Apr. 15, 26	.....	.....	.....	.....	.....	.....
88	67½	80½	70¾	4,000,000	100	Northern Pipe Line	$2S.A.	Jan. 1, 26	200	74½	74½	74½	74½	+2⅜
75¼	60¼	67⅜	59	60,000,000	25	Ohio Oil Co	50cQ	Mar. 31, 26	700	61	60⅝	59	59⅛	—2⅜
44½	19	23	15	10,000,000	25	Penn Mex Fuel	50c	May 21, 25	.....	.....	.....	.....	.....	.....
65½	45⅞	60¼	48	60,000,000	25	Prairie Oil & Gas	.....	July 31, 25	18,400	56½	56½	53⅜	55	—1⅜
129¾	106	127½	122½	81,000,000	100	Prairie Pipe Line	$2Q	Apr. 30, 26	560	123¾	124	123½	123½	— ¼
254	200	212	191	4,000,000	100	Solar Refining Co	$5S.A.	Dec. 19, 25	10	198	198	198	198	—6
103	163	74½	61½	10,000,000	100	Southern Pipe Line Co	$1Q	Mar. 1, 26	500	67½	67½	67	67	+1
197	139	197	152	20,000,000	100	South Penn Oil Co	$1.50Q	Mar. 31, 26	80	157	157	155	156	—4
47⅞	45	50	38¾	20,000,000	25	do new	.....	.....	500	39½	39½	38½	38½	—1½
84	50	56	51¾	3,500,000	100	South West Pa. Pipe Line	$1Q	Apr. 1, 26	.....	.....	.....	.....	.....	.....
.....	.....	58¾	51½	(sh) 12,602,434	N.P.	S. O. California (new)	.....	.....	14,600	55½	55⅞	53½	54	—1½
70¾	59½	70½	61½	$ 223,756,258	$25	S. O. Indiana	62½cQ	Mar. 15, 26	21,900	64⅞	65⅛	63⅝	64¼	— ¾
46	30⅛	36⅛	25	8,000,000	25	S. O. Kansas	.....	June 16, 24	3,000	27½	27½	26¾	27½	+ ½
137	114¾	134⅜	108	16,864,434	25	S. O. Kentucky	$1Q	Mar. 1, 26	500	119¼	119¼	118	118	—2
270	231	275	206	3,000,000	100	S. O. Nebraska	$5S.A.	Dec. 19, 25	250	263	275	263	274	+10
485¼	40¼	47¼	30⅜	227,535,300	25	S. O. New York	35cQ	Mar. 15, 26	34,200	31¼	31¾	30¾	31	— ⅛
360	338	362	302½	14,000,000	100	S. O. Ohio	$2½Q	Apr. 1, 26	40	312	312	311	311	—4
123	116	119	117	7,000,000	100	do pfd	$1¾Q	Mar. 1, 26	.....	.....	.....	.....	.....	.....
27	12	23	15½	1,722,931	25	Swan-Finch Co	.....	Nov. 1, 19	.....	.....	.....	.....	.....	.....
109½	80⅛	112	95¾	61,919,950	25	Vacuum Oil Co	50cQ	Mar. 20, 26	3,600	100½	100½	97½	98⅜	—2⅜

Borne Scrymser $2 extra April 15 $4 extra Oct. 15 $4 extra April 15 ‡Vacuum 50c extra Mar. 20, June 20, Sept. 19 Dec. 19 Dec. 19 special $1 Dec 19 S.O. Neb. $10 extra Dec. 1 special $1 Dec. 19 S. O. Neb. $10 extra Dec. 19 Ohio Oil 50c extra Dec. 31. Chesebrough 62½c extra Dec. 29. Buckeye P. L. 59c extra Mar. 15. National Transit 50 extra Mar. 15. Indiana P. L. $1 May 15.

New York Curb Market

1925 High	1925 Low	1926 High	1926 Low	Par Value	Stocks	Transactions week ended May 7 Sales	First	High	Low	Last	Ch'ge
11½	2½	14½	5	....	Amer. Maracaibo	38,100	6⅝	8¾	6¼	6⅞	+ ⅝
8¾	5	6¾	5⅞	$10	Arkansas Natural Gas	700	6¼	6¼	6⅛	6⅛	0
.....	.....	19¼	14⅜	N.P.	Beacon Oil	2,700	15¼	15¼	14¼	14½	—1
47½	38	.....	.....	$25	British-American	.....	.....	.....	.....	.....	.....
10¼	2¾	22⅞	9¼	25c	Carib. Syndicate	25,100	13⅛	14	11¾	13	+ ⅜
43	35	42⅝	37½	$20	Cities Service	7,800	41⅛	41¾	41	41⅛	— ⅛
85⅝	80¼	84¾	82¾	100	do preferred	3,000	84½	*84¾	84½	84¾	+ ¼
8	7¼	7½	7⅜	10	do preferred B	300	7½	7½	7½	7½	+ ⅛
21¼	17½	20⅜	19	10	do bankers' sh	100	20½	20½	20½	20½	+ ½
2¾	.60	3½	2	N.P.	Colombia Syndicate	21,800	2½	2½	2 1/16	2⅜	— ¼
15	8¼	15¼	10	N.P.	Creole Syndicate	2,800	12	12	10½	10½	—1½
12¼	5	7⅜	1⅝	N.P.	Crown Central	300	2¼	2¼	2⅛	2⅛	— ⅛
7	2	3¾	2	N.P.	Derby Oil & Refining	1,100	3½	3½	3	3	+1
27	10½	17½	13	N.P.	do preferred	2,400	17½	*17½	14⅜	15	+2
6	1⅜	7	4	N.P.	Gibson Oil	73,500	4⅜	6½	3⅞	6½	+2¼
3¾	1⅝	2	.65	N.P.	Gilliland v. t. c	.....	.....	.....	.....	.....	.....
98¼	63½	93¾	82	$25	Gulf Oil Corp	4,700	85¾	86	84¾	85	— ⅛
5⅞	2½	4	2¼	N.P.	Kirby Petroleum	400	2½	2½	2¼	2¼	— ⅛
23½	17⅛	25⅛	16½	N.P.	Lago Oil & Trans. A	32,800	19⅛	19¼	18⅛	18⅛	—1⅛
11¾	4¼	13	8½	N.P.	Lago Petroleum	100	9⅝	9⅝	9⅝	9⅝	+ ⅛
13	6	12¼	5¾	N.P.	Leonard Oil & Dev	13,900	9¼	9¼	8¼	8½	— ¼
25⅞	18	25¾	21	N.P.	Lion Oil Refining	1,000	21	22	†21	21½	—1¼
4¼	1¾	2¾	2⅛	N.P.	Marland of Mexico	.....	.....	.....	.....	.....	.....
5¾	.56	5½	3⅝	$10	Mexican-Panuco	5,100	4⅜	4⅜	4⅛	4⅛	— ⅛
2	1	1¾	1⅜	1	Mountain & Gulf	300	1⅝	1⅝	1⅝	1⅝	0
26¼	18⅜	26	23	10	Mountain Prod	7,300	25⅛	25⅜	24¾	24⅞	— ⅛
6¾	3⅝	6¾	5⅞	5	New Bradford	1,700	6¼	6¾	6⅛	6¾	0
24¾	16½	5½	2	10	New England Fuel	100	5	5	5	5	— ¼
19⅜	6¼	17	9⅛	1	New Mexico & Ariz	1,700	10¼	11	9¾	11	+ ¾
12½	8¼	17	8	25	New York Oil	.....	.....	.....	.....	.....	.....
37	14	36	34¼	25	Ohio Fuel Corp	.....	.....	.....	.....	.....	.....
2¼	.90	2¾	.70	N.P.	Peer Oil Corp	2,400	70	77	70	75	—1
28½	16	22¾	18½	$10	Pennok Oil	800	20	20	19⅝	19⅝	— ⅜
44½	16	29⅝	14⅜	25	Red Bank Oil	1,900	29½	29½	26	28½	—1⅜
33½	19	24⅜	14½	N.P.	Reiter-Foster	6,400	22	22⅜	20⅝	20⅞	—1⅜
9½	3½	7½	4⅝	N.P.	Ryan Consolidated	500	4¾	5¼	4¾	5¼	— ⅛
9¾	6¼	10	8	$10	Salt Creek Cons	300	8½	8½	8½	8½	0
35	24	36	28⅞	10	Salt Creek Prod	6,400	31¾	31¾	30¾	31	—1
3⅞	1	2¾	1⅜	5	Savoy Oil	.....	.....	.....	.....	.....	.....
13¾	9	10	7⅝	10	Tidal Osage	.....	.....	.....	.....	.....	.....
10⅞	8	10	8¾	10	do non-voting	.....	.....	.....	.....	.....	.....
.....	.....	27	21	N.P.	Tide Water Associated	10,000	24¼	24⅜	23½	23¾	— ¾
.....	.....	99¼	97½	100	Tide Water Associated preferred	2,300	97½	97½	97½	97½	0
4⅞	1¾	8	4¼	5	Venezuelan Pet	8,700	6½	6½	5¾	5¾	— ½
.....	.....	29⅜	23½	....	Warner-Quinlan w. i	1,000	26⅞	26⅞	25¼	26¼	—1
31¼	22⅛	27¼	22	N.P.	Wilcox Oil & Gas new	800	25	25	24¾	25	— ⅛
7	3⅞	6⅝	5¼	N.P.	Woodley Petroleum	200	5⅝	5⅝	5½	5½	— ⅛

*New High †New Low xEx-dividend

(Continued from page 124)

On Dec. 31 current assets amounted to $18,716,335 and current liabilities to $6,731,175, leaving net working capital of $11,985,260. This company was organized early last year, by E. L. Doheny to take over the California properties of the Pan American Petroleum & Transport Co. after control of the latter was purchased by a syndicate comprised of Standard Oil Co. of Indiana, Blair & Co., Chase Securities Corp., and British interests. Its operations became effective as of Jan. 1, 1925.

Pan American Western income account for 1925 follows:

Gross	$28,583,179
Operating and other costs	19,150,428
Operating profit	$ 9,432,751
Depreciation and depletion	2,940,675
Abandonment of properties	648,370
General and admin expenses	700,048
Interest	528,125
Federal taxes	382,924
Net profit	$ 4,232,609

Pan American Western balance sheet of Dec. 31 follows:

ASSETS

Oil lands, leases, pipe lines, etc.	*$35,064,610
Inventories	15,015,144
Accounts receivable	997,548
Oil receivable	89,428
Notes receivable	198,504
Cash	2,415,711
U. S. naval reserve No 1	2,469,574
Miscellaneous assets	762,753
Deferred charges	215,022
Total	$57,228,294

LIABILITIES

Class A stock	†$ 2,350,235
Class B stock	‡ 9,400,000
Funded debt	11,250,000
Mortgage debt	410,000
Advances	13,950,000
Accounts payable	4,001,571
Notes payable	2,009,134
Oil payable	20,365
Dividends payable	250,005
Federal tax reserve	450,000
U. S. naval reserve No. 1	2,399,023
Surplus	10,737,961
Total	$57,228,294

*After depreciation and depletion
†100,010 no par voting shares
‡400,000 no par non-voting shares.

Oil Dividends

	Amt.	Payable	Stock of Record
California Pet. q	50c	June 1	May 20
Continental Oil q	25c	June 15	May 15
General Pet. q	75c	June 1	May 20
National Refg. q	37½c	May 15	May 1
Northern P. L. s. a	$3	July 1	June 11
do extra	$1	July 1	June 11
Prairie O. & G. q	50c	May 31	May 15
S. O. Indiana q	62½c	June 15	May 17
do extra	25c	June 15	May 17
Vacuum Oil q	50c	June 19	May 29
do extra	50c	June 19	May 29
E. T. Williams	½%	June 1	May 15

Cleveland Stock Market

May 7

	Par	Bid	Asked	Last Sale
Canfield Oil Co	$100	.....	.....	107
do pfd	100	.....	99	100
Fred G. Clark Co	10	2¾	4½	3¼
National Refining Co. x.	25	.....	40	38⅞
do pfd	100	127	135	129½
Paragon Refining Co	25	6½	7½	6½
do pfd	100	....	....	67

x—Ex dividend.

THE OIL INDUSTRY EXCHANGE

Positions Wanted

Refinery Superintendent. At present employed, wishes to make change. Considerable experience with high and low pressure cracking processes, vacuum and all types tube and continuous stills, and asphalt refining. Will go anywhere. Box 598.

Single Man 26 With Three Years Sales Experience of lube oils, desires connection with independent refiner. Will go anywhere. Box 597.

Married Man 34 Years Old with oil sales experience in wholesale marketing. Can travel. Will give reference covering period of years in selling. Albert M. Bartram, 1021 Munsey Bldg., Baltimore, Md.

Situations Open

We need an active young man with tact and resourcefulness who knows the Oil Trade, to visit them on our behalf. Engineering education an assistance but not necessity. National Petroleum Mutual Fire Insurance Co., 708 South Washington Square, Philadelphia, Pa.

Assistant Manager Wanted to take charge and develop sales of marketing company doing 1,000,000 gallons per year. Located in Wisconsin. Steady advancement for man who can show results. Box 600.

Chemist Wanted

by one of the oldest and largest strictly independent distributors of petroleum products in the Middle West. Unusual opportunity for man with some experience, ability, initiative, and capable of growth.

Give full details, as replies treated confidential.

Box 591, care National Petroleum News.

Miscellaneous

WHAT IT COSTS

For "Position Wanted" advertisements—5 cents per word. Minimum cost $1.00. All other classified advertising—10 cents per word. Minimum cost $3.00. Advertisements set in special type or with border—$4.00 per column inch. Copy must reach us not later than Friday preceding date of issue.

All advertisements carried on this page are payable in advance.

Business Opportunities

SALES ORGANIZATION DESIRES TO TAKE ON THE OUTPUT OF A SMALL REFINERY.
Address Box 599.

Jobbers—Marketers

My services, as buyer of Petroleum Products, at your disposal. Small commission. Market information furnished regularly and prompt attention given all requests.

Inquiries solicited.

C. Fred Mercer
206 City National Bldg.
Wichita Falls, Texas

WHERE JOBBER AND REFINER MEET

My office is nothing more than a clearing house for Seller and Buyer of

Petroleum Products

DALE W. MOORE

532-533 Mayo Bldg., Tulsa, Okla.
Telephones: 3-4177 and 3-4178.
L. D. 136

For Sale

For Sale—At a Bargain, on account of discontinuance of use of electrical pumping equipment, nine 35-15 H. P. Westinghouse 440 volt, 60 cycle, 3 phase oil well pumping motors complete with registers or starting units, oil swivels, counter shafts, sliding bases, 12x12 fibre pulleys, conduits and wiring. Stored at present in Louann, Arkansas. Motors are in perfect condition, having been run only from 4 to 8 months each. They will stand any inspection or test and are guaranteed to be in A-1 mechanical order. Write W. E. Morgan, Box 1117, Shreveport, La.

Used Equipment

Practically as good as new and at a bargain should be easy to obtain if you make your wants known to the readers of The National Petroleum News thru the classified page

See rates and other information at the foot of the center column.

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